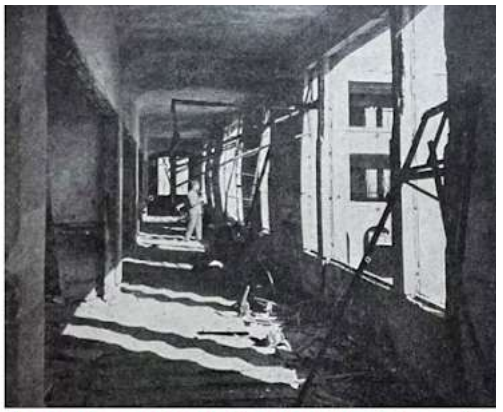
R. G. Shreffler and W. S. Bennett, *Tactical nuclear warfare*, Los Alamos report LA-4467-MS, originally classified SECRET, p8 (linked HERE):

"Our present tactical nuclear armaments were conceived and weaponized in the 1950's under assumptions that are ill-advised for the 1970's. Escalation was equated with desperation in an extension of a contestant concept of war. Ten or twenty kilotons was regarded as a "small, tactical" yield, to be used in a European ground battle for real estate *after* a strategic exchange. In the aftermath of that holocaust, reducing "tactical" collateral damage was only of academic interest. A new strategy - policing our boundaries with individual yields reduced by factors of 100 to 1000, and burst predominantly in the air or underground – could reduce the integrated collateral damage by factors of thousands, even if the *number* of uses were greatly increased."

- **Deterrence**: Cold War tactics, neutron bombs, Putin's threats—how nukes stop wars (or don't).
- **Bomb Design**: Clean neutron bombs, thermonuclear yields, EMP effects—techy stuff.
- **Blast Effects**: Overpressure, concrete vs. wood, Hiroshima data—physics of destruction.
- **Radiation**: Cancer stats, shielding, fallout—health and survival angles.
- **Civil Defense**: Shelters, evacuation, Soviet manuals—practical prep.

Joseph Friedlander's suggested reorganization for www.nukegate.org



Interior of modern concrete scho building, 457m from ground zero Hiroshima. Ground zero is to right, which is why the windows were forced inwards by unshielde blast. SOURCE: British Mission Japan. (Censored by Americans.

DETERRENCE	BOMB DESIGN	BLAST EFFECTS	RADIATION	CIVIL DEFENSE
Nuclear deterrence truths: Cold War successes, neutron bombs scared Moscow, Putin's 2023 Ukraine threats show it's not bluff.	Designs that define destruction—clean neutron bombs cut fallout, EMP fries tech, thermonuclear yields scale up.	Blast physics: concrete takes 60 psi, wood collapses fast—Hiroshima data vs. modern cities.	Radiation realities—cancer from fallout, concrete shields it, stats from 1945 survivors.	Survival prep: shelters take 4500 psi, Soviet manuals, evacuation beats panic.

How to deal with bigoted disarmers? (if you're polite, you're treated as a fool, as Chamberlain was at Munich; but if you're honest, you're hated to hell as Herman Kahn was when publishing OTW in 1960)

Empirical data (above, calculated by Joseph Friedlander) proves that the amount of collateral damage and collateral (large area) casualties per unit of explosive energy *decreases as the yield of the explosion increases.* (The small effect from increased blast duration at higher yields is more than negated by the increasing absorption of energy in causing damage, depleting blast pressure by irreversibly using up blast energy on larger targets where the number of buildings destroyed in any given radial line increases as yield is scaled up! Similarly, the higher mushroom cloud results in a large average arrival time of fallout, allowing more decay to occur before the majority of the fallout from higher yield surface bursts arrives downwind, thus preventing fallout casualties from scaling directly with yield.) The result of correct (non-linear) yield-area scaling is that large conventional wars involve tens or hundreds of millions of 0.1 ton (100 kg) TNT equivalent explosions have a similar damaging effect to smaller nuclear stockpiles (thousands), so that the overall effects of large nuclear and large conventional wars are similar. Standard lying propaganda to the contrary is based on applying open desert and Hiroshima data (for wood frame city centre buildings) to modern cities and ignoring simple standard civil defense (such as target evacuation or sheltering in concrete buildings and subways).

In the 1980s after Afghanistan was invaded by Moscow, Reagan ordered low yield neutron bombs (with fusion stages stored securely in the USA) to deter further enemy invasions, and an arms race to bankrupt Russia. These neutron bombs unfortunately were quickly disarmed and even the only UK tactical deterrent of invasions the WE177 was disarmed in 1998! If the anti-nuclear people have their way, the world will go back to 1914/1939 and conventional world wars in response to undeterred invasions (or indeed invasions actually triggered by conventional mobilizations of the August 1914 sort). Huge amounts of money are then spent on killing and destruction, destroying homes, families, countries. For some reason, the mass media has never debunked the "pacifists" who get democracies to disarm/appease terrorists, triggering wars. Much of the Western media seems hooked on encouraging the scams that create wars, starvation, and poverty.

Nuclear Equivalent of Conventional Wars
damage area scales as W $^{2/3}$ instead of directly with yield

War	Bombs Dropped (Million Tons)	Nuclear Equivalent Yield (MT TNT)
WWII	3.4	215
Korea	0.65	41
Vietnam	7.6	460

The point is, conventional wars when scaled non-linearly with bomb yield, produce similar damage to nuclear wars if targets are similar.

Note: fallout radiation/knockout blow stuff is analogous to the mustard gas and 12,000 tons of Nazi tabun nerve gas "escalation risks" of WWII

Because damage or fallout hazard area scales as only something like W^{2/3} instead of directly with yield, the increase in nuclear yields over conventional yields is not enough to negate the fall in nuclear stockpiles, as compared to conventional stockpiles.

E.g., a megaton dropped during WWII or Vietnam as 100kg bombs meant 10,000,000 bombs. If each bomb devastated area A, then the total area devastated was 10,000,000A.

But for a single nuclear megaton bomb, the damaged areas is not 10,000,000A, but only about A(10,000,000^{2/3}) = 46,400A.

Therefore, you clearly need 10,000,000/46,400 = 215 megaton bombs to cause the same damage as a single megaton in the form of typical WWII bombs (100 of TNT each, typically).

W^{2/3} scaling ignores blast attenuation by damage done in cities.

TWO POINTS FROM THIS: (1) BECAUSE NUCLEAR SHOCKPILES ARE IN THE THOUSANDS WHEREAS TENS OR HUNDREDS OF MILLIONS OF BOMBS ARE USED IN LARGE CONVENTIONAL WARS, THE SCALING LAWS MEAN SIMILAR DAMAGE, (2) ONLY NUCLEAR BOMBS DETER WAR!

"SIR, The advocates of an independent nuclear deterrent use the standard argument that Hiroshima and Nagasaki would not have been destroyed if Japan had had nuclear weapons and would retaliate. ... Iraq and Libya should have the bomb to protect themselves against a nuclear attack by Israel, which everybody believes already has a nuclear arsenal. ... Ultimately all nations would become nuclear weapon states, and what a secure world this would make! I am probably among the very first to have used the nuclear deterrence argument, when I began work on the atom bomb in Liverpool in 1939. My reason for doing this was the belief that if Germany made the bomb, the only way to prevent its use against us would be if we, too, had it and threatened to retaliate [**as the UK did, USING the deterrent threat of its own mustard gas and anthrax to deter escalation to gas war against 12,000 tons of German tabun nerve agent!**]. ... If Hitler had the bomb it is very likely that his last order from the bunker in Berlin would have been to destroy London, even if that would have brough terrible retribution to Germany [**which is precisely what Hitler ordered Speer to do with 12,000 tons of tabun nerve agent, and Speer ignored the order because of UK mustard gas, anthrax, and gas defenses like masks and gas proof shelters, thus permitting the deterrent of *credible* retaliation and toxic war capabilities to CREDIBLY DETER THAT ESCALATION, as Herman Kahn explained in the 1960s - which was simply ignored by Rotblat and all Western Russian funded anti-nuclear propaganda fronts - as quoted later on this blog**]." - Joseph Rotblat, *The Times* November 6, 1981.

Dr Frank Barnaby (Pugwash anti-nuclear propaganda publisher), *Prospects for peace*, Pergamon, 1980, p57: "The total explosive power of these weapons is equivalent to about one and a quarter million Hiroshima bombs or about four tons of TNT for every man, woman, and child on earth." [**Fact: megatons of TNT were dropped on Vietnam without annihilation, and for nuclear weapons avoiding collateral damage is easier because the flash precedes the blast by many seconds over most of the danger area - *contrasted to all BBC fake news films of nuclear explosions with the blast dubbed simultaneously on to the flash to prevent knowledge of the basis of civil defence duck and cover being understood or taken seriously, in their usual lying rant designed to maximise casualties, when deterrence fails* - providing a warning signal for "duck and cover", and the damage does not scale up in direct proportion to the energy release, but far more slowly, especially when cumulative shielding by blast and radiation energy absorption by buildings near ground zero is included, a fact simply suppressed by Hans Bethe and Samuel Glasstone, vastly exaggerating countervalue damage estimates! Please click here to see a 1976 debunking of Frank Barnaby's 1980 oft-repeated lie in Ambassador Kohler's excellent Introduction to *War Survival in Soviet Strategy* at pages xiv-xvi, "During the Vietnam War, more than 25 billion pounds of TNT were dumped on North and South Vietnam (15 billion by air and some 10 billion by other means) for an average of some 730 pounds for each of a total population of 34 million and an average of 3,000 pounds for each person in prime target areas..."** So CND can stick that fact in their pipes and smoke it! Conventional war must be stopped by nuclear deterrence NOW. We can't instead just make the world safe for a conventional WWIII, for the sake of appeasing demented bigots, liars, quacks, war mongers and "peace" charlatans.]

"**The case for Trident** *From Lord Boyd-carpenter.* SIR, Lord Gladwyn writes in your issue of today (May 28) a long and as one would expect from him well-reasoned letter. But the answer to him is surely contained in a short question. If Poland, or Afghanistan, possessed an independent and effective nuclear weapon, would the one be in danger of invasion, and the other suffering from it?" - *The Times*, May 29, 1981.

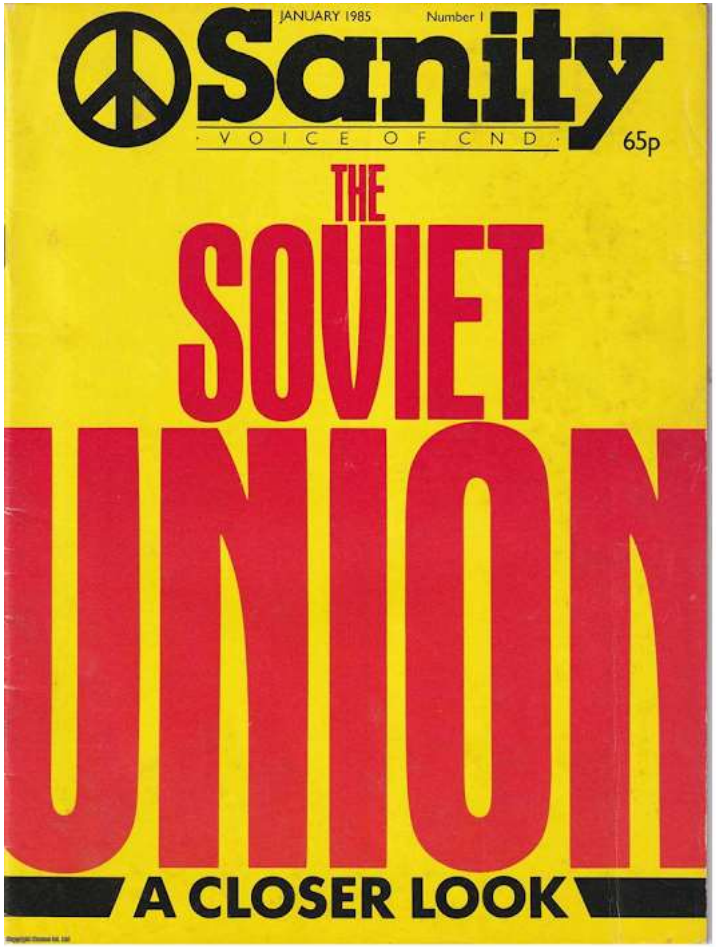
ABOVE: Dr Joseph Rotblat and "anti-nuclear" Pugwash comrades supporting Russian tactical neutron Chief Weapon Designer Boris Litvinov, and publishing easily debunked "anti-nuclear" gibberish lies (were they really trying to help nuclear deterrence end war, after all, by acting as "straw men" or Lenin's "useful idiots"? Let's try to be "nice and charitable to them" by raising this possibility!). *If anybody in the mass media such as the BBC is still duped by Glasstone's unobstructed terrain nuclear blast and radiation mythology used to support deluded, paranoid, Kremlin supported taboo based propaganda fronts behind all "arms control and disarmament" lying scams (a repeat of the mass media's 1920s and 1930s "gas bombing knockout blow" propaganda for appeasement, sadly including "nukemap" whose "nuclear secrecy" blog creator simply tries to lie about anyone debunking all those lies to cover up the delusion of using free field effects data for modern concrete cities that attenuate blast and radiation as we proved in 1990)* - then please simply click **here for our detailed key declassified nuclear testing and capability documents compilation (EM-1 related USA**

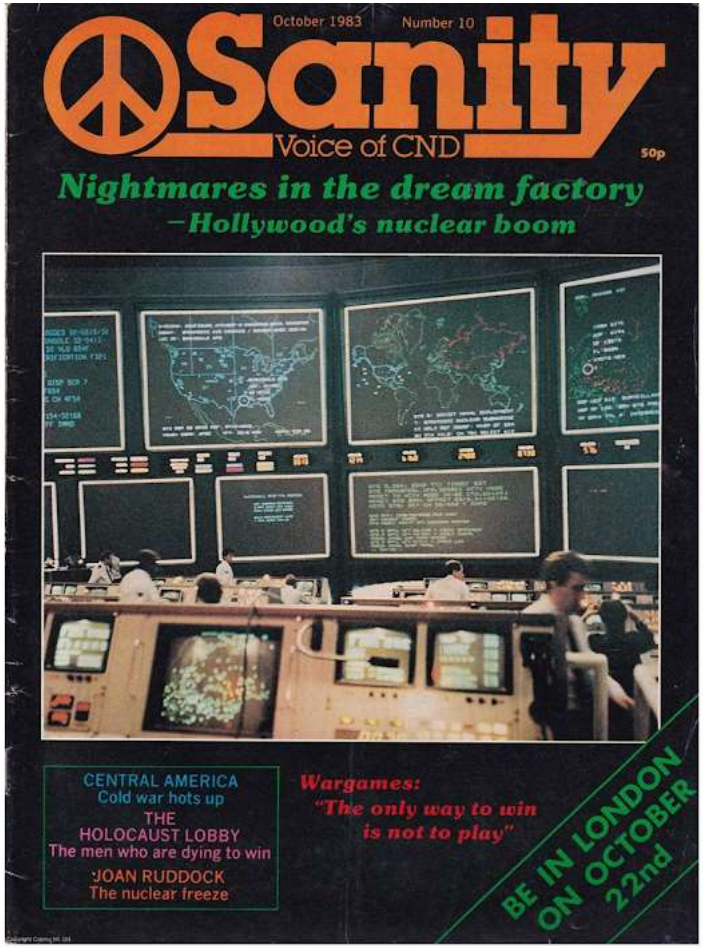


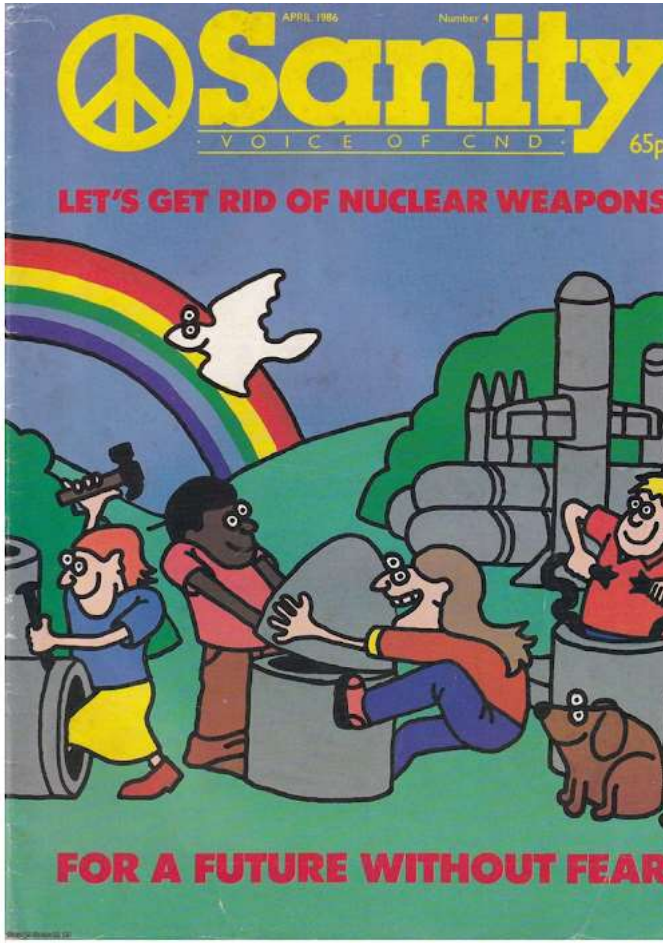
Russian tactical neutron bomb (designed by Boris Litvinov, far right) being fondly patted by Dr Joseph Rotblat.

research reports plus UK nuclear weapon test reports on blast and radiation), from nukegate.org. UPDATE: the Russian VNIITF nuclear weapons lab propaganda photo of Pugwash, including Joseph Rotblat with hand on nuclear weapon in September 1997, is now being used by the Russians! Just like the old days of the Cold War when Lenin decreed that "useful idiots" be used to brainwash the West with fake news based disarmament "information". Fans of VNIITF nuclear weapons like Joseph Rotblat, happily touching a Russian nuclear weapon and listening with a big smile on his face to Russian neutron bomb Chief Weapons Designer Boris Litvinov (far right with big eyebrows) can now find it posted online by the Russian VNIITF nuclear weapons lab at their Russian website, located here: **https://vniitf.ru/article/meropriyatiya** (just in case that link disappears for some reason, like a nuclear bomb going off accidentally at VNIITF which Western "arms control and disarmament" are obsessed about, that site is also backed up at wayback machine here: **https://web.archive.org/web/20250409221150/https://vniitf.ru/article/meropriyatiya**). Note that VNIITF is Russia's 2nd nuclear weapons laboratory, founded in 1955 at Snezhinsk in a deliberate effort to made a competitor for Russia's original Sarov lab, VNIIEF (founded in 1946), akin to America's creation of Lawrence Livermore National Laboratory at Teller's insistence to break down groupthink by creating a real competitor to Los Alamos National Laboratory! **Boris Litvinov wrote a useful basic summary (omitting some details which can now be filled in with other Russian declassified documents) of his work on clean nuclear weapons design aka "neutron bomb" design, which is included in a 2014 VNIITF collection of his works, which we've extracted and placed online here** (that is a direct scan in Russian, so we can't be accused of translation bias in **our translation!**).

ABOVE: Communist Nuclear Disaster propaganda used Hollywood nuclear war fiction not facts to obscenely lie about the war-deterring peace-inducing effects of nuclear weapons to "justify" claims that however bad life under Russian dictatorship was, it was a case of "Better Red than Dead", and more sinisterly, claimed that putting clock back to a pre-1945 era to "make the world safe" for conventional world war, such as 1914 or 1939 was progressive and "liberal". Note the appeal to children on the April 1986 cover of "Sanity", with its claim that *removing the deterrent of WWIII will make a future "free from fear"!* Below: Communist Nuclear Disaster propaganda against credible deterrence of conventional wars that cause wasteful destruction, megadeaths, as well as inflation and poverty, and the lying claim that 400 megatons will deter WWIII, based on no-civil defense whereas Russia had extensive civil defense! Moreover, as Herman Kahn explains, civil defense is stabilizing against all key escalation risks including accidental escalation or a bolt out of the blue (surprise attack of the Pearl Harbor sort): by being able to massively reduce the consequences of accidental or limited nuclear war, you give yourself a greater range of options rather than depending solely on counter-attack and thus escalation! Kahn in his 1960 *On Thermonuclear War* debunks the notion that an enemy dictator can easily order an all-out surprise attack, because the Russian civil defense system is *based on time-taking massive evacuations of most (non-key workers) folk from cities to rural shelters, and many city shelters are dual use - e.g. underground car parks or subway*

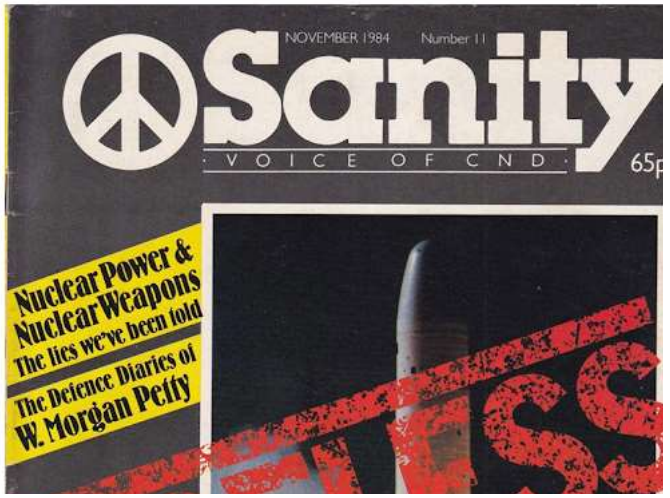

JANUARY 1985 Number 1
Sanity
VOICE OF CND
65p
THE
SOVIET
UNION
A CLOSER LOOK

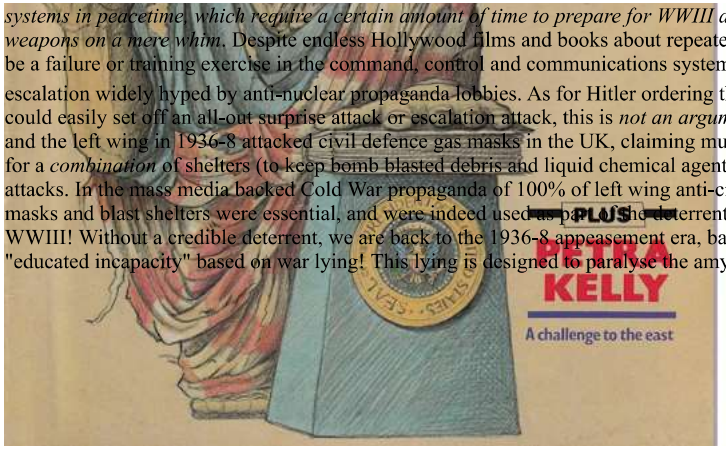

October 1983 Number 10
Sanity
Voice of CND
50p
Nightmares in the dream factory
—Hollywood's nuclear boom
CENTRAL AMERICA
Cold war hots up
THE
HOLOCAUST LOBBY
The men who are dying to win
JOAN RUDDOCK
The nuclear freeze
Wargames:
"The only way to win is not to play"
BE IN LONDON ON OCTOBER 22nd


APRIL 1986 Number 4
Sanity
VOICE OF CND
65p
LET'S GET RID OF NUCLEAR WEAPONS
FOR A FUTURE WITHOUT FEAR

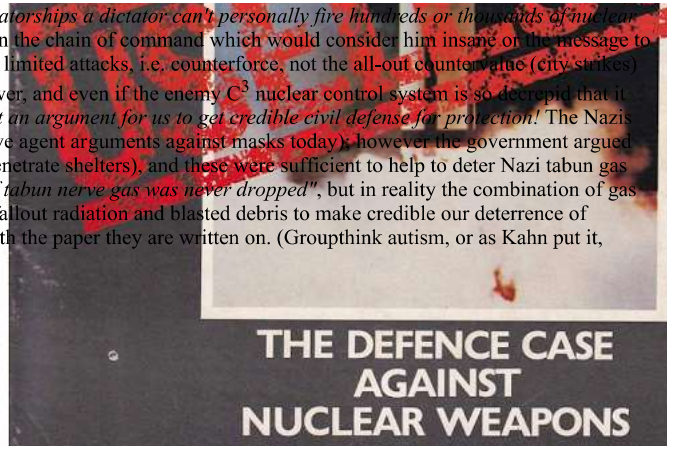

JULY 1984 Number 7
Sanity
OF CND
65p
REAGAN
THE EVIDENCE
The President's disastrous arms control record


JUNE 1984 Number 6
Sanity
NUCLEAR


NOVEMBER 1984 Number 11
Sanity
VOICE OF CND
65p
Nuclear Power & Nuclear Weapons
The lies we've been told
The Defence Diaries of
W. Morgan Petty







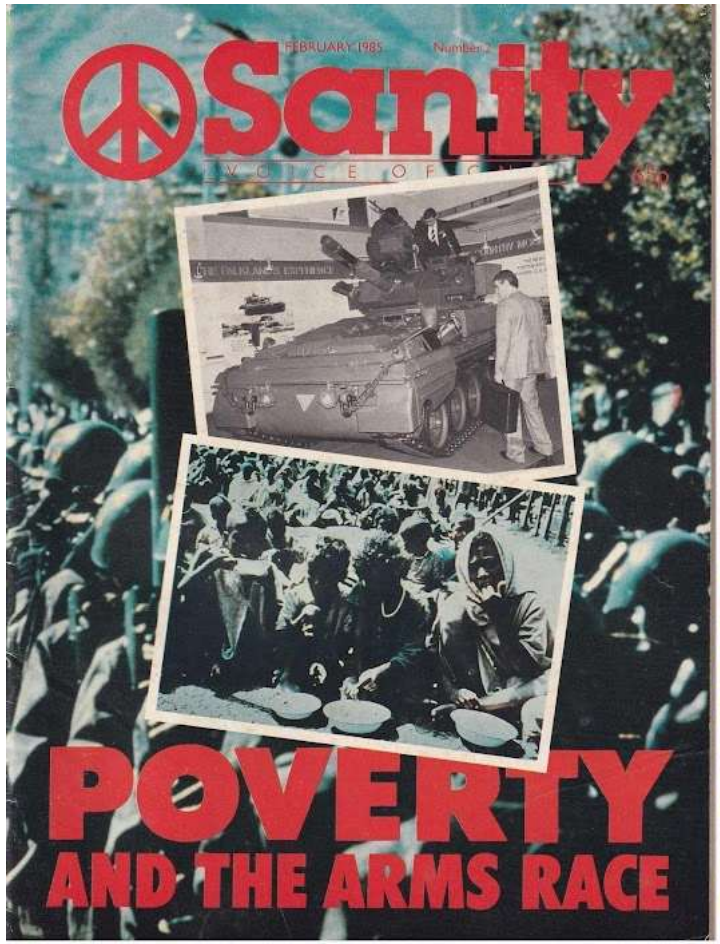
systems in peacetime, which require a certain amount of time to prepare for WWIII and thus prevent a "bolt out of the blue" attack - and because even in hardline dictatorships a dictator can't personally fire hundreds or thousands of nuclear weapons on a mere whim. Despite endless Hollywood films and books about repeatedly close-calls due to accidents in the Cold War, there were be plenty of barriers in the chain of command which would consider him insane or the message to be a failure or training exercise in the command, control and communications system. The only credible uses of nuclear weapons are political and as demonstration or limited attacks, i.e. counterforce, not the all-out countervalue (city strikes) escalation widely hyped by anti-nuclear propaganda lobbies. As for Hitler ordering the use of 12,000 tons of tabun nerve agent from his bunker, there are limits to power, and even if the enemy C^3 nuclear control system is so decrepid that it could easily set off an all-out surprise attack or escalation attack, this is *not an argument for us to disarm in a cosy "peacedeal" with such lunatics to ensure peace, but an argument for us to get credible civil defense for protection!* The Nazis and the left wing in 1936-8 attacked civil defence gas masks in the UK, claiming mustard gas would contaminate skin and kill regardless of masks (idential to the nerve agent arguments against masks today); however the government argued for a *combination* of shelters (to keep bomb blasted debris and liquid chemical agents like mustard agent off skin) *and* gas masks (against inhalation of any gas that penetrate shelters), and these were sufficient to help to deter Nazi tabun gas attacks. In the mass media backed Cold War propaganda of 100% of left wing anti-civil defense bigots, gas masks were *"useless in WWII since Hitler's 12,000 tons of tabun nerve gas was never dropped"*, but in reality the combination of gas masks and blast shelters were essential, and were indeed used as part of the deterrent to prevent the enemy using gas. Identical arguments apply to protection against fallout radiation and blasted debris to make credible our deterrence of WWIII! Without a credible deterrent, we are back to the 1936-8 appeasement era, backing off from aggressors due to fear, by making fake peacedeals that are not worth the paper they are written on. (Groupthink autism, or as Kahn put it, "educated incapacity" based on war lying! This lying is designed to paralyse the amygdala with fear and prevent any rational discussions of the true proved facts!)

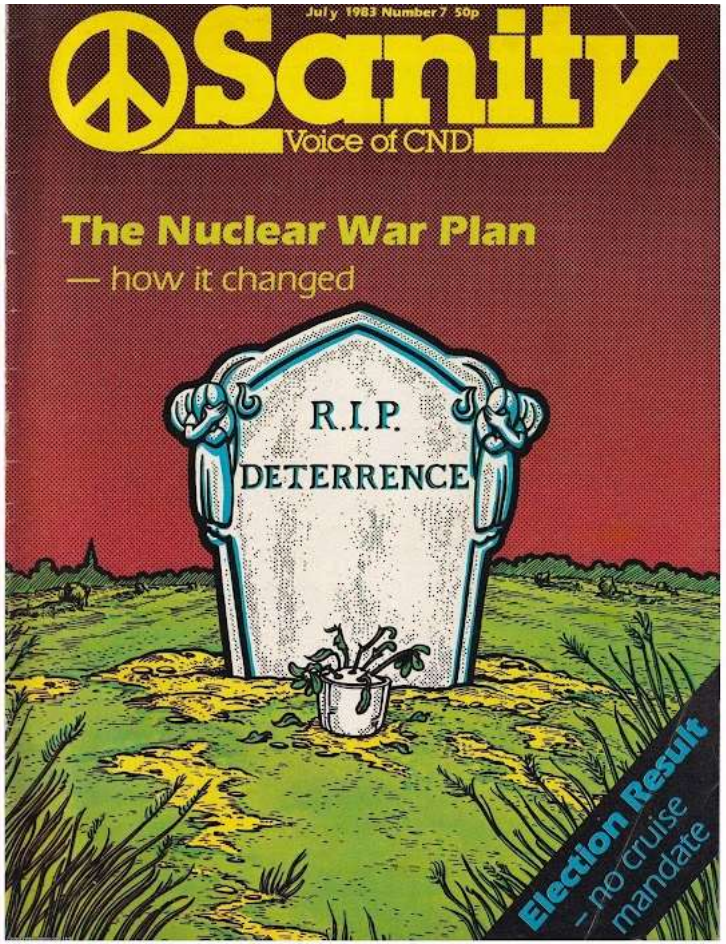
A long introduction is provided above blog posts to debunk **populist pro-disarmament groupthink "strategic deterrence" mythology, originating from fake civilian effects data invented by falsely applying free-field effects to modern urban targets and from the non-inclusion of tactical nuclear weapons effects data or even the collateral damage avoidance civil defense chapter which appeared in 1957-64 editions of Glasstone's *Effects of nuclear weapons*, removed from the 1977 propaganda Carter era edition! E.g. the "nuclear winter" hoax was debunked by George R. Stanbury OBE in 1964, and it is false due to ignoring city skyline thermal radiation shielding that prevents firestorms/soot clouds, was exposed here at www.nukegate.org to inform the public that the mass-redia is repeating the appeasement/disarmamament scams by liars again, just as it did in the 1930s with tragic results: more wars and the present world crisis risking WWIII (click here for a compilation of the key suppressed data)**. Glasstone and all related pseudo-"pacifist" (actually appeasement and world war-mongering) disarmament propaganda is also **debunked more briefly here**, and even more briefly **here**. So there's no excuse for anyone saying "this is too MUCH evidence to consider." It's time to face up to reality! Relatively clean neutron bombs, of total yield 1 kiloton or less, can be used to avert collateral damage, either by air bursting at a height to eliminate significant blast and thermal damage, or they can be placed into earth-penetrator warheads to debunk tunnels and hard shelters: for example, **0.01 kiloton detonated at 15 metres in dry soil, which is possible by proven earth penetrator warhead delivery, is equivalent to a $15/(0.01^{-3}) = 60$ m depth when scaled up to 1 kiloton reference yield, so it *averts collateral damage*, including thermal flash burns and fire effects entirely, all air blast damage, initial radiation, and it also traps the very small amount of radioactivity from the very low fission yield in fused silicate "glass" (like Trinitite) deep underground. This suppressed collateral damage energy is transformed into *extra ground shock and cratering action*, producing a crater radius of 15 metres and destruction of buried hard tunnels and bunkers to several crater radii, as explained in field manual FM 5-106**.

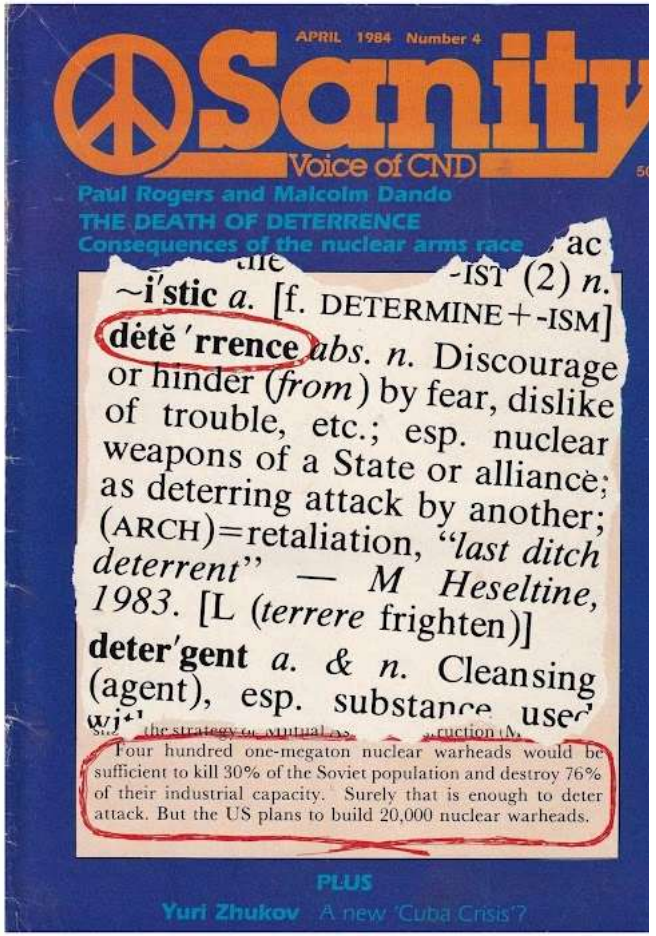
The key problem is that **Russia now has relatively clean tactical neutron bombs (see CIA declassified report linked HERE** and our translation of Russian tactical nuclear weapons **Chief Weapons Designer Boris Litvinov's paper about clean Russian tactical nuclear warheads linked HERE**), but we disarmed all of ours in 1990s (having only about 100 multipurpose B61 "tactical" dirty weapons in Europe now, against thousands of Russian dedicated cleaner tactical nuclear weapons), creating a *major deterrence gap against invasions, tactical nuclear warfare and other major provocations;* yes, in "theory" we could always escalate to strategic retaliation, but most people and Western leaders would certainly regard such escalation as more risky than tit-for-tat deterrence. As Kennedy put it, we need more options than humiliation or all-out counter city nuclear war. As with Russian use of Po-210 and Novichok in the UK in 2006-18, and sarin in Syria, "no first use" doctrines make no sense where the enemy refuses to admit to first use, or even to admit to illegally invading Ukraine and starting a war! Against liars, peace agreements are never worth the paper they are written on (we saw this in 1938 nutcase appeasement ego trips supported by extremists such as fascists and communists in the UK, disguised as populist "peace" sentiment). Peace propaganda, where it attacks life-saving civil defense for credible war deterrence (in order to claim falsely "there is no alternative to disarmament but annihilation") is enemy supporting propaganda, and now desperately needs debunking. The sort of people indulging in this sort of lying to ensure deterrence is undermined are thugs who will not be reasoned with, but they have the ear of the Nobel Prize committee, the UN Security Council, and the mass media such as the BBC which refuses to objectively fact-check their lies on nuclear weapons, and backs their fake "news" based on outright lies masquerading as "virtue signalling" by fake peace deals as an "alternative to credible deterrence." All this is a repeat of exactly what the BBC propaganda did in the 1920s and 30s, in supporting the 1930s League of Nations, which was as impotent then to deter aggressors as the Russian vetoing UN is today, repeating endless hype of fake peace deals from the Treaty of Versailles, the 1925 Locarno Pact, 1928 Kellogg-Briand Pact, etc., *which made war by creating a false sense of security and thus undermining credible deterrence of war, encouraging aggression;* these old, old, old *Si vis pacem, para bellum* lessons are never ever learned because they provoke crazy taboo superstitions from those lying thugs backing dictators by stealth propaganda tricks (Rotblat told us he got into this when his brother was in the Red Army in 1944, and was allegedly a comrade of the West, despite the seizure of half Europe by the Red Army after WWII!). Furthermore, the 1839 Treaty of London by which the UK guaranteed Belgium's security, escalated the invasions of 1914 into World War I! This was repeated in 1939 when the UK gave a similar guarantee to Poland, despite lacking the resources to make the promise credible: when Poland was invaded, we failed to stop the invasion, escalating the conflict into WWII! Despite this, in the 1990s NATO was disarmed of all W79 neutron bomb invasion deterrents and Ukraine was disarmed in exchange for the 1994 Budapest Memorandum on security assurances, bits of paper that (surprise, surprise) failed to deter Russia! There are numerous other examples of peacenik overhyped "peaceful alternatives to war" that have backfired, most notoriously "wonderfully peaceful" American sanctions against Japan that (whoops) resulted in Pearl Harbor and Pacific Theatre WWII.

Charles Glaser, Austin Long, Brian Radzinsky (eds), *Managing US Nuclear Operations in the 21st Century* (Brookings Institution, 2022), p40 and p209:

[p40] "The roles assigned to US nuclear weapons could change in the future ... The 2018 *Nuclear Posture Review* [of Trump's 1st term], for instance, clarified the role of US nuclear weapons by raising the possibility of nuclear retaliation in response to a cyberattack that resulted in massive economic damage, substantial social disruption, or significant loss of life. ... current US doctrine retains the possibility of using nuclear weapons first. This is required to maintain the credibility of nuclear threats intended to deter non-nuclear strategic attacks. [p209:] *The B-61 Bomb.* The US B-61 bomb is the only nuclear weapon forward deployed to NATO and can be carried by US and allied dual-capable aircraft as well as US strategic bombers. Since the first B-61 nuclear gravity bomb entered service in 1968, numerous modifications have been made to improve the B-61's safety, security and reliability. ... With these upgrades and the addition of a US Air Force-supplied tail-kit assembly, the B61-12 life extension program will consolidate and replace four B-61 weapon designs. When fielded, the B61-12 will balance the greater accuracy provided by the modern tail kit with a substantial reduction in yield, with no overall change in military requirements or characteristics [i.e., it ain't a clean neutron bomb]. ... The bomb will be approximately 12 feet long and weigh approximately 825 pounds." (Sadly this book is biased in its treatment of deterrence. The book fails to mention Herman Kahn's superior deterrent war-avoidance option, yet mentions Schelling four times, despite the failed stable balance of terror, etc, he promoted. We discuss the distinction in detail below, since it is crucial to understanding why deterrence failed and led to the Ukraine War, which risks escalation to WWIII!)







April 1984 Communist Nuclear Disaster propaganda IN-Sanity rag repeating US Defense Secretary McNamara's lie that only 400 megatons will deter WWIII, when in fact that is based on Glasstone "Effects of Nuclear Weapons" *no-civil defense lying propaganda!*

"President Richard Nixon asked rhetorically in 1970, "Should a President, in the event of a nuclear attack, be left with the single option of ordering the mass destruction of enemy civilians in the face of the certainty that it would be followed by the mass slaughter of Americans?" [Source: James Schlesinger, *Briefing on Counterforce Attacks*, pp. 5-6] President Nixon answered his own rhetorical question in 1971, "I must not be—and my successors must not be—limited to the indiscriminate mass destruction of enemy civilians as the sole possible response to challenges. This is especially so when that response involves the likelihood of triggering nuclear attacks on our own population." [Source: Public Papers of the Presidents of the United States: Richard M. Nixon, 1971, Washington, D.C.: USGPO, 1972, p310.]" - **Keith B. Payne, *James Schlesinger's Lifelong Creed of Public Service and the Schlesinger Doctrine,* March 6, 2019**.

U.S. Secretary of Defense Harold Brown, *The flexibility of our plans,* Speech delivered on August 20, 1980 to the Convocation Ceremonies for the 97th Naval War College Class, Newport, Rhode Island (published by White House in Vital Speeches, October 1, 1980): "At the President's direction, the Department of Defense has, since 1977, been working to increase the flexibility of our plans to make use of the inherent capabilities of our forces. ... This doctrine, as I emphasised earlier, is *not* a new departure. The U.S. has never had a doctrine based simply and solely on reflexive, massive attacks on Soviet cities. Instead, we have always planned both more selectively (operations limiting urban-industrial damage) and more comprehensively (a range of military targets). Previous Administrations, going back well into the 1960s, recognised the inadequacy of a strategic doctrine that would give us too narrow a range of options. ... This evolution in our doctrine enhances deterrence ... it conveys to the Soviets that any or all of the components of Soviet power can be struck in retaliation, not only their urban-industrial complex."

U.S. Secretary of Defense Casper Weinberger, *The Times* August 11, 1981: "I think this [W79 tactical invasion deterring neutron bomb] will increase very largely the ability of the United States and its allies to deter attack upon us and thereby prevent war completely. [I.e., the neutron bomb increases the conventional war threshold massively by decreasing the *tactical* nuclear threshold and therefore replacing conventional warfare's mass destruction with nuclear deterrence! This lowering of the tactical nuclear threshold to deter conventional war doesn't "lower the strategic nuclear threshold" but *instead increases the strategic nuclear threshold, which in the absence of a credible tactical deterrent is extremely low because a conventional NATO-Russia war becomes far more likely, and is accompanied by a high strategic nuclear escalation risk, a factor ignored by Fred Kaplan in his May 1978 "Scientific American" KGB-style hate rant against credible deterrence of war*.]"

This speech supported Carter's limited nuclear war planning in Presidential Directive PD59. Note, however, that arms control and disarmament Russian propaganda fronts and fellow travellers prefer to stick to the older and discredited inflexible "massive retaliation balance of terror" dogma, e.g. U.S. Defence Secretary Robert McNamara's statement on page 76 of his 1968 book *The Essence of Security* that you need to be able to kill 20-25% of Russians and 50% of Russian industrial capacity to "serve as an effective deterrent". However, he admitted later in testimony to Congress that this is not an effective deterrent of invasions (the trigger for both world wars), so he also doubled America's tactical battlefield nuclear stockpile from 3,500 to 7,000 weapons (he is quoted on this later, below). On page 207 of an unclassified 1971 book by McNamara's defense analysts Enthoven and Wayne-Smith, *How Much is Enough?* it is alleged in Table 11 that 100 megatons can destroy 59% of Russian industry, and that 200-300 megatons will destroy 21-30% of the Russian population. These claims are fake news, based on scaling up Glasstone's unprotected Hiroshima effects, and ignore Russian civil defense, as pointed out in 1976 by Ronald Reagan's civil defence analyst T. K. Jones of Boeing Corporation. The true figures show that with adequate dispersal and shelters, such claims are as incorrect as the "news" in 1936 that one ton of mustard gas dropped on the UK would kill the entire population. Along with the increase in Russian nuclear stockpiles from inferiority in 1963 to superiority in 1970, the microchip computer revolution increased the accuracy of the missile delivery systems from 1.3 km CEP for Titan II in 1963 to just 0.3 km for Minuteman III in 1970, allowing warhead yields to be reduced by roughly the cube of the fall in CEP, i.e. by a factor of about $(1.3/0.3)^3 = 81$. Thus, collateral damage was massively reduced since target destruction could be achieved with a lower nuclear yield. It became feasible to use several very small, accurate MIRV warheads in a "bus" on a single missile, rather than one heavy, megaton yield warhead:

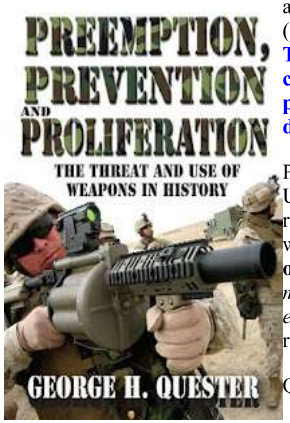
"Everybody's going to make it if there are enough shovels to go around. Dig a hole, cover it with a couple of doors, and then throw three feet of earth on top." - T. K. Jones, Deputy Undersecretary of Defense for Strategic and Theatre Nuclear Forces, Los Angeles Times, January 15, 1982. "Protective measures should not be regarded as ineffective solely because they are simple in nature. The white-washing of windows can provide very effective protection against fire resulting from the heat flash from nuclear explosions [only the top windows in cities with a possible sky view of a fireball need be covered; aluminium foil can be used for a less permanent effect on glass, because the thermal flash precedes the blast arrival for modern MIRV warhead yields]." - UK Home Secretary Willy Whitelaw, *The Guardian*, August 4, 1980.

"What makes the enhanced-radiation reduced-blast warhead different from existing tactical nuclear weapons is that it would destroy less of West Germany ..." - *UK Financial Times newspaper*, February 5, 1981.

"I should like to invent a substance or a machine wth such terrible power of mass destruction that war would thereby be made impossible forever. ... The day when two army corps will be able to destroy each other in one second, all civilized nations will recoil from war ..." - Alfred Nobel (funder of Nobel Peace Prizes and inventor of chemical explosives, quoted on p35 and p38 of Sampson's *Arms Bazaar*, 1977).

"Would Angola have been overrun by South Africa or Afghanistan by the Soviet Union if they had had nuclear weapons? Of course they would not have been." - Sir John Boyd, *The Times*, September 11, 1981.

"... the only nuclear weapons ever used in war, were dropped on a country which had none of its own." - Lord Chalfont, *The Times*, December 3, 1980.



UPDATE 15 March 2025: we've again revamped the introduction to this blog to further debunk all the MAD anti-nuclear mythology promoted by the BBC and allied Kremlin propaganda for Russian appeasement via Western arms control and disarmament. Ukraine has now agreed a cease-fire and Putin is stalling. Prime Minister Starmer wants European peacekeepers in Ukraine, a demand rejected by Putin (*which might thus cause pre-emptive war by Putin on Europe, it's more likely than in 1985 when we had tactical W79 neutron bombs deterring such provocations, disarmed in 1992 "to make the world safer"!*). **The only way to kick Russia out of Ukraine is to either escalate risking WWIII (which will hardly win Trump the Nobel Peace Prize), or to have a ceasefire, negotiate on the back of that, and try to come up with some kind of Korean War style July 23, 1953 armistice (see brief analysis here which includes a link to a definition of fascism which differs from that implied by George H. Quester on p83 of *Pre-emption, Prevention, and Proliferation* Routledge, London, 2017 paperback edition; Quester argues fascism = might makes right, whereas Forsyth argues that fascism is dictatorial duplicity, lying, propaganda, suppression of constructive criticism, etc.).** There is a risk that Russia will escalate his "preventative war" in Ukraine if appeased for a worthless peace agreement.

Professor George H. Quester states in *Pre-emption, Prevention, and Proliferation* (Routledge, London, 2017 paperback edition), p19: "preventative war comes to look like pre-emption [i.e. Putin invaded Ukraine on the so-called "pretext" that Ukraine was likely to become a NATO and/or EU member, bringing Europeans to Russia's doorstep] To be 'paranoid' is to sense enmity when there is no such enmity in reality. ... Regimes and leaders will vary as to how brutal and violent they would be if no one in the world were ready to resist. Hitler and Mussolini thus strike us as the classic models of the kind of dictators who could never have been successfully appeased, who would have taken all consessions merely as a sign of weakness. **Yet aggressive brutes also tend to be paranoid, projecting their own faults on to others.** [*Emphasis added: we all have sad experiences of the sort of dictatorial, ignorant, abusive, self-serving, mad, egotistic, narcissistic loons in "authority" positions who know nothing but are loved by the mass media!*] And we live in a world where even the most democratic and peace-loving of states will be ready to respond to violence with counter-violence [*Korea, Vietnam, Iraq, Afghanistan, Ukraine, for examples of this FACT that debunk peacenik propaganda deceit from Russian Cominterm insanity fronts*]. We really thus have very little experience with a world where other powers are totally disinclined to resist."

Quester's 2017 *Pre-emption, Prevention, and Proliferation* contains the following "good stuff" that MUST be pointed out here:

[p32:] "If ... the French and Poles had launched a preventative war against newly-Nazi Germany in 1933, and had deposed Hitler ... 'revisionist' analysts all around the world would afterwards have been speculating that Hitler and the Nazis had probably not been serious ... To be really certain that Hitler was so evil that he needed to be deposed, one had to let him demonstrate that evil, in a manner that cost many millions of lives." [This is always the case. If someone simply assassinates an evil thug, they end up becoming a martyr and inflaming tensions. So there are no short-cuts. You need a *credible* deterrent to end invasions. Typical examples of pre-emptive or preventative wars are Japan's surprise attack on the Russian fleet at Port Arthur in 1904, the events of August 1914, September 1939, the attack on Pearl Harbor in 1941, the Chinese intervention in Korea in 1950, the Israel-Egypt war of 1967, the Russian invasion of Afghanistan in 1979, the Falkland Islands invasion of 1982, and of course the recent invasions of Ukraine in 2014 and 2022-now.]

[p45:] "... Clausewitz's observation that 'the aggressor is always peace-loving'. If the victim does not resist, we ... conclude that there is no state of war. If asked to tell when WWII began ... the good student would respond with September 1939 ... not with March 1939, when Hitler's forces occupied the remainder of Czechoslovakia. This is simply because the Czechs did not resist, while the Poles *did* resist." [Trump stated this fact to Zelensky in February 2025: Ukraine STARTED the 2022-now war by resisting Russian invaders, by trying to get EU and NATO membership, etc. This is true: if Ukraine had surrendered, there would have been no war. Putin did not start the war any more than Hitler bombed London in September 1939 to start war. That's the peacenik mythology of "war"; if you surrender, there is no war, so you can always simply sit down and come to an agreement with the next Hitler, with no lives lost and win a Nobel Peace Prize into the bargain! It's because people resist tyranny that there is war, and this is so bloody "taboo" to state due to anti-deterrence CND propaganda that we can't even begin to discuss the diplomatic solution to crises, the language is so corrupted by

propaganda. Democrats start wars to kick out aggressors who want "peace on their own terms". If you say "Russia started this war", you are disproved by the facts of history: it is the defender who "starts war" by resisting invasions. Let's not lie: we have to be ready to start a war against the aggressor who invades our territory, or we have no security whatsoever. 100% of left wing Orwellian "doublethink" is lying mythology, taboos, superstitions,obvious stinking crap dressed-up-as-profundity-and-Lord-Jesus's-personally-endorsed-morality. If we REALLY want that kind of fake peace, we can have it right now by surrendering to Putin. The "price of fake peace" is CHEAP: at most it just costs one white flag, usually it's free, just raising both hands at once!]

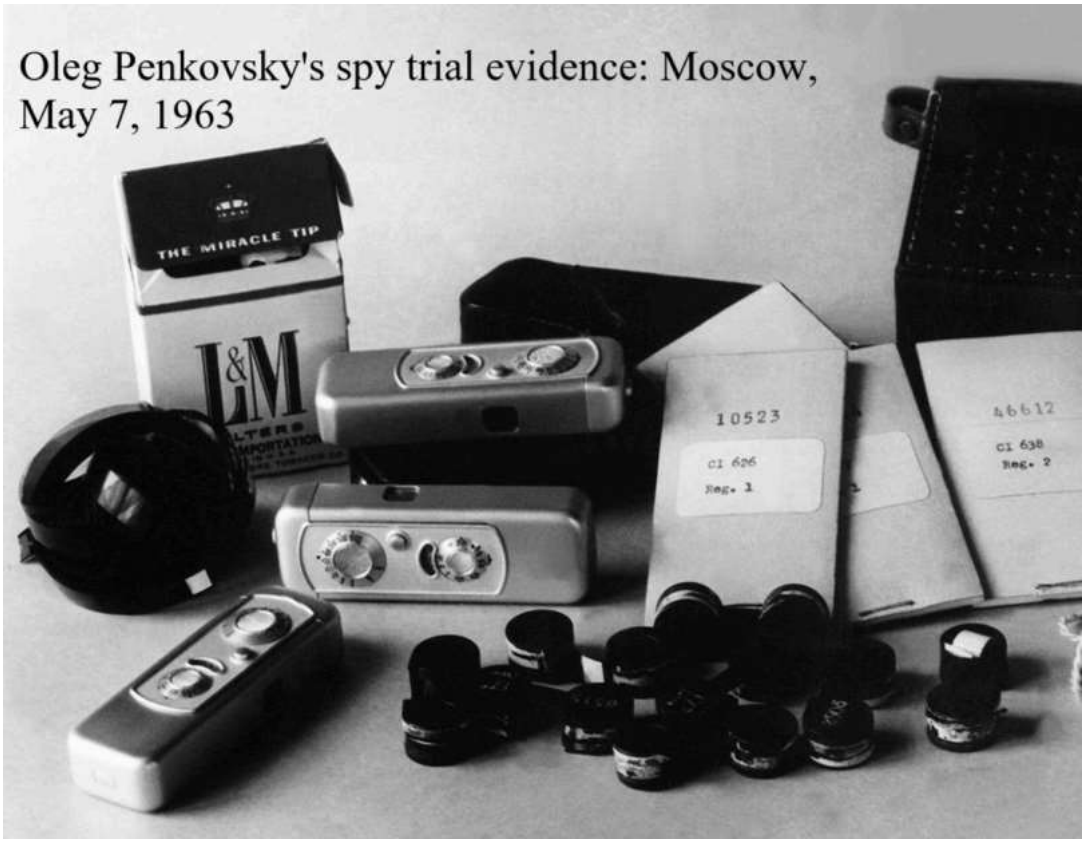
[p50:] "An important argument for preemption advanced by the Bush administration is that there may be possessors of weapons of mass destruction who can not be deterred ... the only way to protect the American people may be to launch an attack on these WMD systems *before* they come into use, in what could be labelled either as 'preemption' or 'preventative war'..." [This is the reason the West must get ABM and civil defense, to provide alternatives to WWIII, and tell the anti-civil defense and anti-ABM *Scientific American* commies to "please off risking the lives of millions to sell a few copies of a glossy propaganda rag or win some elitist dictators some Nobel Peace Prizes!" But we won't, so the lies from the virtue-signalling lying thugs will keep on coming until too late!]

[p95:] "Dictators who claim they are merely pre-empting imminent attacks by others are ... not given a hearing, because dictators hardly ever tell the truth, because such people tend to be paranoid, because they tend to project their own vices on to others." [Sadly, irrational paranoia is more contagious than flu: once you have a number of paranoid dictators with vast strategic and nuclear stockpiles and you believe the populist mass media lies that rational alternatives to paranoia such as ABM and shelters are "more dangerous" than nuclear missiles, you *need* to have a healthy fear of upsetting them, or you're likely to turn the click back to 1914 or 1939. Freeman Dyson reported a conversation with Herman Kahn in his 1984 book *Weapons and hope:* Dyson dismissed Kahn's concerns over Russian war preparations as "paranoia", and Kahn responded "of course I'm paranoid!" Kahn's job was to try to avoid a repeat of the world wars, which resulted from groupthink dismissals of warnings from Churchill and others as "paranoia". Paranoia is an irrational fear, not a rational fear (for which, tellingly, there is no word in the damned dictionary). The point is, forget arguing about the definitions which is pedantic trivia, and start making our deterrent credible; si vis pacem, para bellum. If you dont' want to do that: then listen to Trump and surrender to the Russians in the name of peace. Either make war, deter war, or surrender. Statemate war, i.e. Vietnam 2.0 in Ukraine, is the worst of all worlds, maximising the deaths, the severely injured casualties, and sending the USA economy into inflation, and sending out a message that the USA is an insane bunch of politically-correct militarily incompetent loons to every dictatorship considering invasions, across the face of the Earth! We on this www.nukegate.org site focus on the deterrent option, not preventative war. But the latter is discussed in Quester's chapter 6, "Nuclear Preventative War". With superiority in tactical nuclear weapons, the key invasions of Belgium in 1914 and of Poland in 1939 could have been credibly deterred, or at least halted. Anti-tank bazookas, suggested as an alternative by Hans A. Bethe to the neutron bomb, did not either deter or prevent the invasion of Ukraine or many other invasions! Any credible tactical nuclear weapon stockpile that can stop an invasion, can also prevent an invasion, unless the facts are kept secret or distorted by *Scientific American* style propaganda articles, in an effort to make deterrence fail so they can "prove their anti-nuclear lies" despite the fact it will murder millions of innocent human beings.]

[p172:] "The Japanese attack on the US at Pearl Harbor on December 7, 1941 is often portrayed ... as an unprovoked and outrageous act of perfidy. Yet, as Japanese remember their history, this might also seem as a form of 'preemption', as the US was intensifying its economic pressure on Japan with embargoes ..." [Thus, "economic sanctions" etc are not 100% guaranteed to produce the enemy to surrender and declare peace; they have in the past provoked world war. A fact naturally "taboo" in populist history written by hard commie professors of BS peacenik virtue-signalling, aka real war-mongering evil scum: if you want peace, prepare for war. Don't poke the bear in the expectation it will do what you want and give you a nice big friendly hug! Your sense of "empathy" might differ from your paranoid, mad enemy.]

"1. The importance of surprise in Soviet military strategy has increased directly with the advent of nuclear weapons and the application of lessons learned from World War II regarding the significance of the initial period of the war. 2. The Soviets desire to prevent nuclear war, but once it begins, controlled escalation and limited nuclear war are not part of Soviet nuclear strategy. That strategy is based upon the surprise and massive use of both tactical and strategic nuclear weapons." **- Dr. Glenn E. Skaggs, Commander James R. Fitzgerald, Lt Col Glenn A. Bailey, and Commander Steven H. Spayd, *Surprise and preemption in Soviet nuclear strategy,* US National War College, 1983, ADB075070, piii.**

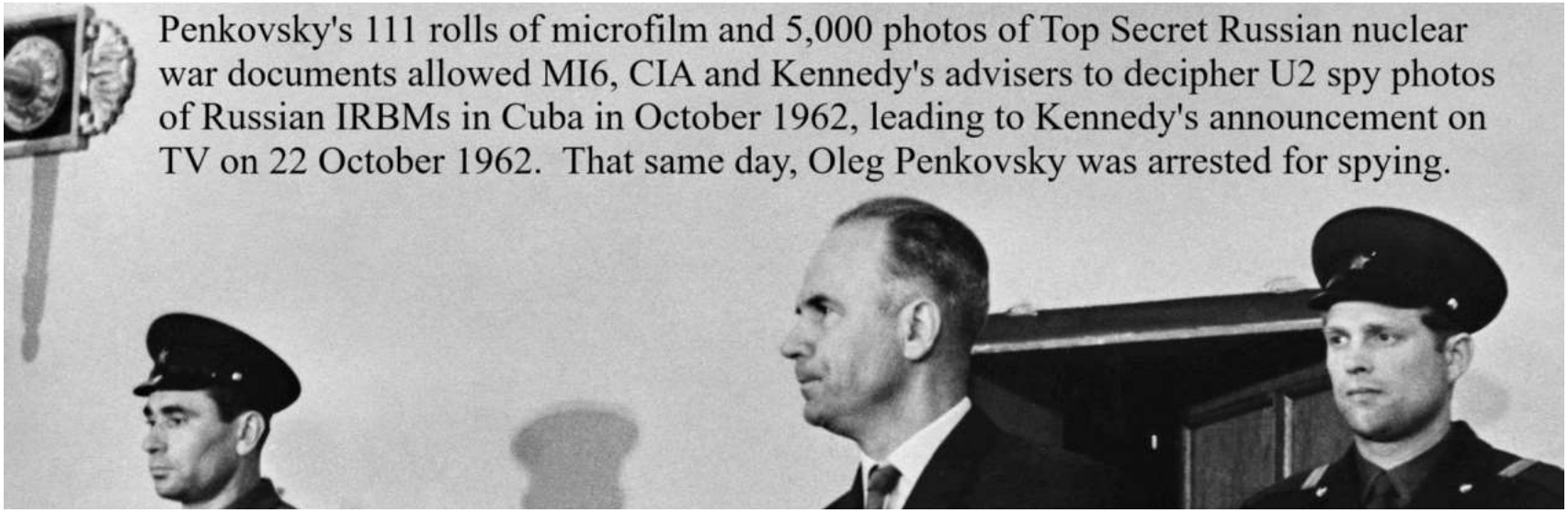
"Both classified and open Soviet military sources indicate that the USSR has added to its strategic concepts the doctrine of pre-emptive attack ... in the event deterrence fails (or is thought to have failed)." - **Top Secret CIA "Ironbark" report, *Soviet Strategic Doctrine for the Start of War,* page i (*Ironbark = Russian spy/intelligence officer Oleg Penkovsky who microfilmed all Top Secret Russian nuclear war manuals and plans in Moscow for the CIA and MI6, including the vital handbook on the IRBMs deployed to Cuba in October 1962, before being caught and shot for spying aged 44*), linked here**.



These Top Secret facts about Russian nuclear tactics from Ironbark/Oleg Penkovsky emphasise the importance of our maintaining a credible tactical nuclear deterrent to prevent wars breaking out through further enemy invasions! Unlike the false economies of the 1930s UK governments, we need to focus on deterring major provocations, instead of either surrender/appease or starting WWIII. Any minimal deterrence system relies upon sequential or chain-type vulnerable links, so the defense is vulnerable because the weakest link will break the chain (e.g. any part of Ukraine border security), so we need a *wide spectrum deterrent with reliability-through-redundancy against failure of deterrence (ABM and civil defense). We need counterforce (not countervalue!) "overkill" to ensure that our deterrent will be credible to the sort of paranoid, delusional thugs' invasions which (based on 1914 and 1939) are likely to provoke WWIII, but we also need parallel systems to mitigate the dangers if deterrence fails (ABM, civil defense, and protracted nuclear war capability).* **The compulsive liars published by *Scientific American's* so-called (Kremlin front) "arms control and disarmamant" is to look at the "big picture", to announce that 99.999% of the links in the nuclear chain haven't corroded, and that anyone worrying about one rusted link like a lack of a credible deterrent of invasions, is "ignoring the big picture" or focussing on trivia; similarly to those folk, a small hole in a submarine or a small gap in a prison wall should be played down as trivia and inspections should focus on the "big picture" which is "all good".** Herman Kahn points out in OTW, however, that it is the weakest link in the chain, the small hole in the submarine, the gap in the wall, which cause complete failure in cheap sequential defense systems. Wars will continue to break out until we get credible overkill to make deterrence as effective as possible, plus ABM/civil defense defensive layers in parallel to produce reliability-through-redundancy. Saving a few bucks by disarming the W79 neutron bomb in the 1990s may not merely have cost hundreds of billions in Ukraine, but huge numbers of human lives in many wars. *How much blood is on the hands of all those who publish or refuse to refute anti-nuclear lying propaganda about the deterrence of invasions by neutron bombs?* How can anyone humane and civilized claim that murdering millions by refusing to deter wars is "virtue-signalling"? We are under the fascist dictatorship of fashion.



Oleg Penkovsky's one-time-pads of codes could not be cracked, but proved damning spy evidence



Penkovsky's 111 rolls of microfilm and 5,000 photos of Top Secret Russian nuclear war documents allowed MI6, CIA and Kennedy's advisers to decipher U2 spy photos of Russian IRBMs in Cuba in October 1962, leading to Kennedy's announcement on TV on 22 October 1962. That same day, Oleg Penkovsky was arrested for spying.




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Recently declassified high quality photos of the effects of the 1949 Russian nuclear test RDS-1 on military equipment

Extracts from Beria's № 163 final (28 October 1949) report to Stalin the 1949 Russian nuclear test data

Заключительный доклад Л.П.Берия И.В.Сталину о результатах испытания атомной бомбы

28 октября 1949 г.

Товарищу Сталину И.В.

Оптическими измерениями (произведенными при помощи специально сконструированных сверхскоростных фотокамер, дающих 600 000, 100 000 и 25 000 кадров в секунду, обычных кино- и аэрофотокамер, специальных спектрографов и других измерительных приборов, заранее установленных на дистанциях 1 800, 3 000 и 5 000 метров от центра взрыва)

(= Russia set up high speed cameras running at 600,000, 100,000 and 25,000 frames/second at 1.8, 3.0 and 5.0 km from ground zero to film fireball.)

Измерено, что поток теплового излучения взрыва составляет 4 % энергии деления всей массы плутония, составлявшей заряд атомной бомбы, испытанной 29 августа 1949 года.

(= The bomb's measured thermal yield was 4%.)

Gamma doses (R) гамма-лучей		Neutron doses (R) нейтронного	
300 м	420 000	300 м	27 000 000
400 м	155 000	400 м	38 000
500 м	68 000	500 м	12 000
600 м	32 000	600 м	4 200
700 м	15 000	700 м	1 800
800 м	7 800	800 м	800
900 м	4 200		
1 000 м	2 300	1 000 м	180
1 100 м	1 260		
1 200 м	700	1 200 м	35
1 300 м	410		
1 500 м	140		
1 600 м	80		

Reflected blast, tons/m^2

Давление отраженной ударной волны	
200 м	2 900 т/м^2
250 м	1 560
300 м	770
400 м	225
500 м	82
600 м	48
800 м	21
1 200 м	12,1
1 800 м	6,2
3 000 м	3,1
5 000 м	1,9

Действие взрывной волны на военную технику

Из всех видов боевой техники *наиболее уязвимой оказалась авиационная* (самолеты): из 53 самолетов, установленных на опытном поле на дистанциях от 500 до 4 000 метров, остались неповрежденными только 2 самолета.

Артиллерийское вооружение полностью разрушено в радиусе 250–300 метров и значительно повреждено в радиусе 500 метров от центра взрыва. *Радиус* полного разрушения (*полного вывода из строя) танков – 250–300* метров. Средним танкам в радиусе 350–500 метров нанесены сильные повреждения.

Воздушные *линии связи* сильно разрушены в радиусе до 1 000 метров, а кабельные линии, проложенные на земле, в радиусе 500 метров.

(= Military effects:
Out of 53 aircraft exposed at 0.5-2km range, only 2 survived intact.
Field artillery and tanks were destroyed at 250-300m and had significant damage out to 500m.
Ground-laid cables were destroyed out to 500m, and overhead cables were destroyed out to 1000m.)

***Animal Effects from Soviet Atmospheric Nuclear Tests,* by V. A. Logachev and L. A. Mikhalikhina, ITT Corporation, 2008, report ADA485845 (DTRA-TR-07-38):**

"The medical/biological studies involved about 8,000 experimental animals (camels, horses, pigs, sheep, dogs, rabbits, guinea pigs, white rats). The basic ways to solve medical/biological problems were by carrying out field experiments that used animals in open areas of test fields and in military and civilian protective structures. Animals were placed in more than 500 field and long-term structures, more than 200 war materie

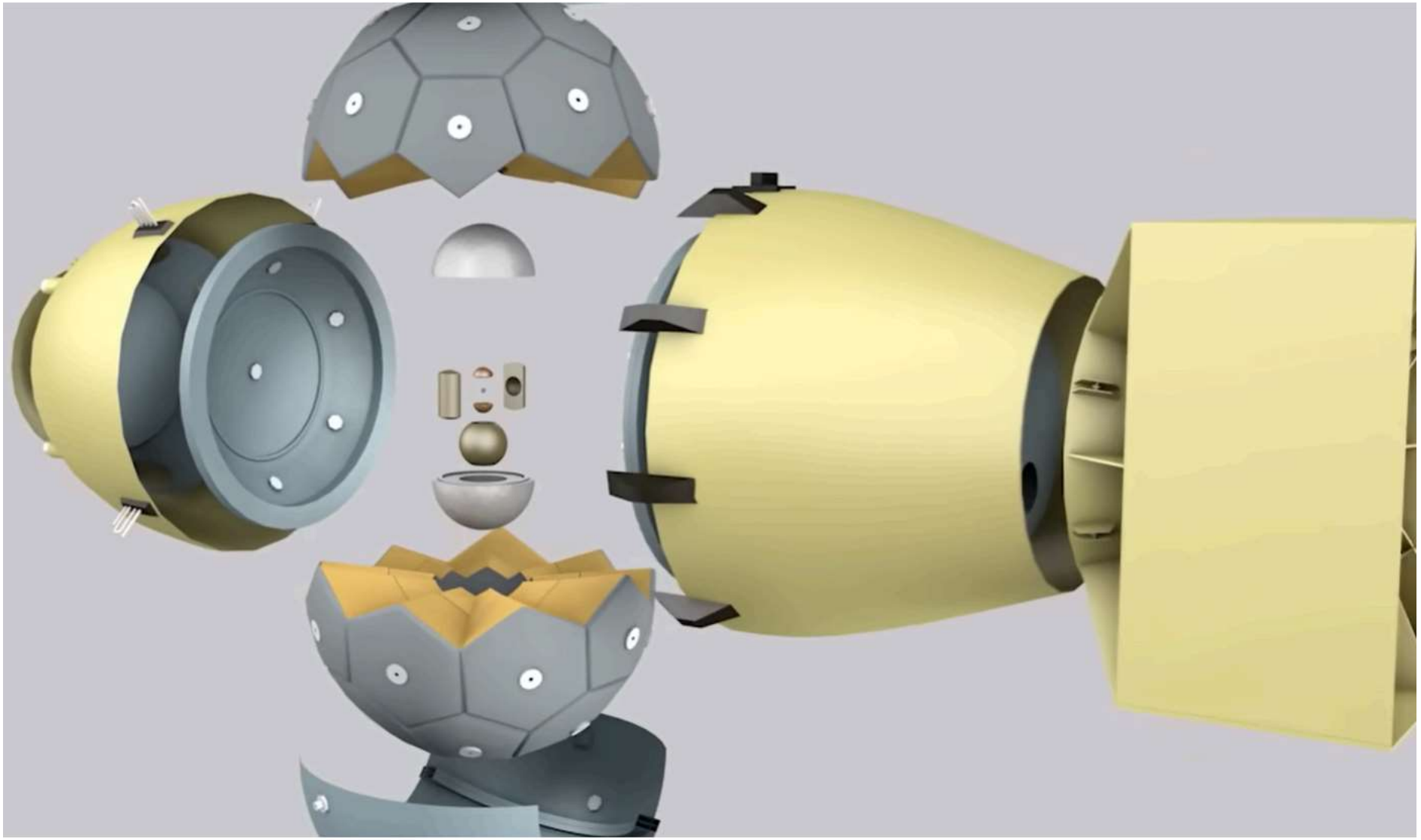
1 700 м	48	10 000 м	0,9
1 800 м	30		

На основании принятой для взрыва тротила зависимости давления ударной волны от расстояния и веса заряда специалисты установили, что тротиловый эквивалент атомной бомбы испытанной 29 августа 1949 г. конструкции, равен 11 000 тонн тротила.

(= Bomb's BLAST yield partition was 11 kt of TNT.)

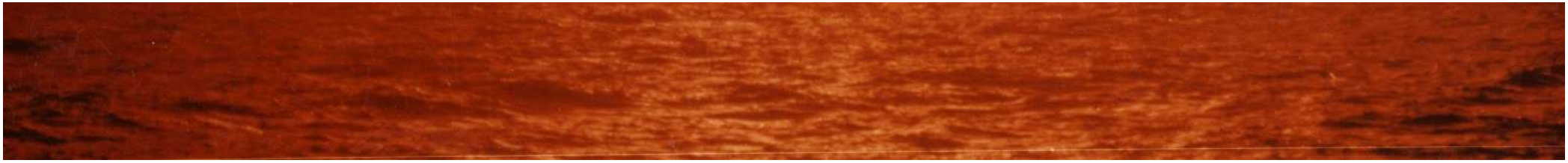
items (tanks, armored personnel carriers, automobiles, aircrafts etc.), and residential brick and wooden houses."

Page 36: at the 1.6 megaton 1955 test, no thermal burns occurred to animals in houses or structures.



Russian "exploded view" of the core capsule cylinder in the Nagasaki nuclear weapon, dropped on August 9, 1945.





ABOVE: ~20 megaton (**LLNL-JRNL-804822 linked here]** explosion Bravo seen from USS Estes, note partial obscuration by cloud cover (worse in a city when building skylines block most of the thermal and other radiations, ignored by Glasstone), and the problem of declassified poor quality scans of key documents. There are now FOUR different quality scanned versions of this photo of a half-collapsed warehouse, Tare Island, Bikini Atoll, about 13 nautical miles or 14.75 statute miles from 15 megaton Bravo:

(1) VERY POOR-quality scan of "Secret-RD" classified Castle-Bravo weapon test report WT-901, Fig. 3.24 at p41 of original pagination (not PDF): **https://osti.gov/opennet/servlets/purl/16069697-F8jsfN/16069697.pdf**

(2) POOR-quality (ditto; WT-901, Fig 3.24): **https://apps.dtic.mil/sti/pdfs/AD0356271.pdf**, and best-quality:

(3) OK-quality (ditto; WT-901, Fig 3.24): **https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/AD356271.xhtml**

(4) EXCELLENT quality: **https://catalog.archives.gov/id/146763468**

These three copies of Secret-RD nuclear weapon test report WT-901 on Bravo damage are a useful compendium of ACTUAL H-bomb effects radii for specific structures including concrete buildings, which avert the "let's rely on computer models, not test data because computers are more reliable!"-fake news. The test data remains the same, although the yield of Bravo has recently been revised upwards to 22 megatons by re-analysis of the effect of water spray on the fireball's blast expansion in films of the test, according to Dr Greg Spriggs and others at Lawrence Livermore National Laboratory; please see the paper **LLNL-JRNL-804822 linked here,** and others, plus a recent TV interview of Dr Spriggs on Bravo yield revision to 22 megatons, discussed in detail later on this blog, below). This means that the blast effects reports above give effects data which occurred at the same distance (unless Bikini Atoll has changed size) but due to a HIGHER yield, 22 megatons not the previously believed 15 megatons! So the effects *ARE EVEN LESS IMPRESSIVE IN REALITY THAN PREVIOUSLY BELIEVED!*

Today, most MIRV warheads are well under 1 megaton yield! tactical nuclear weapons of W54 yield size are just 0.02 kilotons, **FULLY ONE MILLION TIMES LESS THAN THE ~20 MEGATON YIELD OF BRAVO**! So please, anti-nuclear fanatics, now go and figure the reality of *collateral damage avoidance by tactical nuclear weapons!*

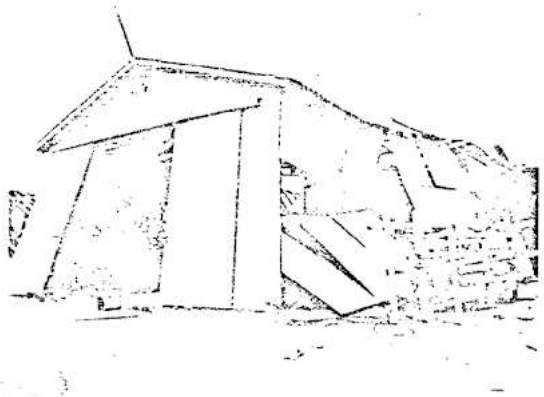


Fig. 3.24 Bin Storage Warehouse Looking Southwest, Tare Island, Postshot, 14-3/4 Miles from GZ

SOURCE:
https://www.osti.gov/opennet/servlets/purl/16069697-F8jsfN/16069697.pdf



Fig. 3.24 Bin Storage Warehouse Looking Southwest, Tare Island, Postshot, 14-3/4 Miles from GZ

SOURCE:
https://apps.dtic.mil/sti/pdfs/AD0356271.pdf

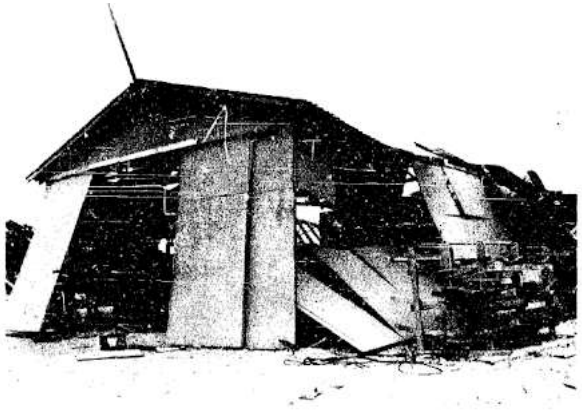


Fig. 3.24 Bin Storage Warehouse Looking Southwest, Tare Island, Postshot, 14-3/4 Miles from GZ

SOURCE:
https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/AD356271.xhtml





ORIGINAL PHOTO SOURCE: Bravo Blast Damage to Eneman Island Building, https://catalog.archives.gov/id/146763468



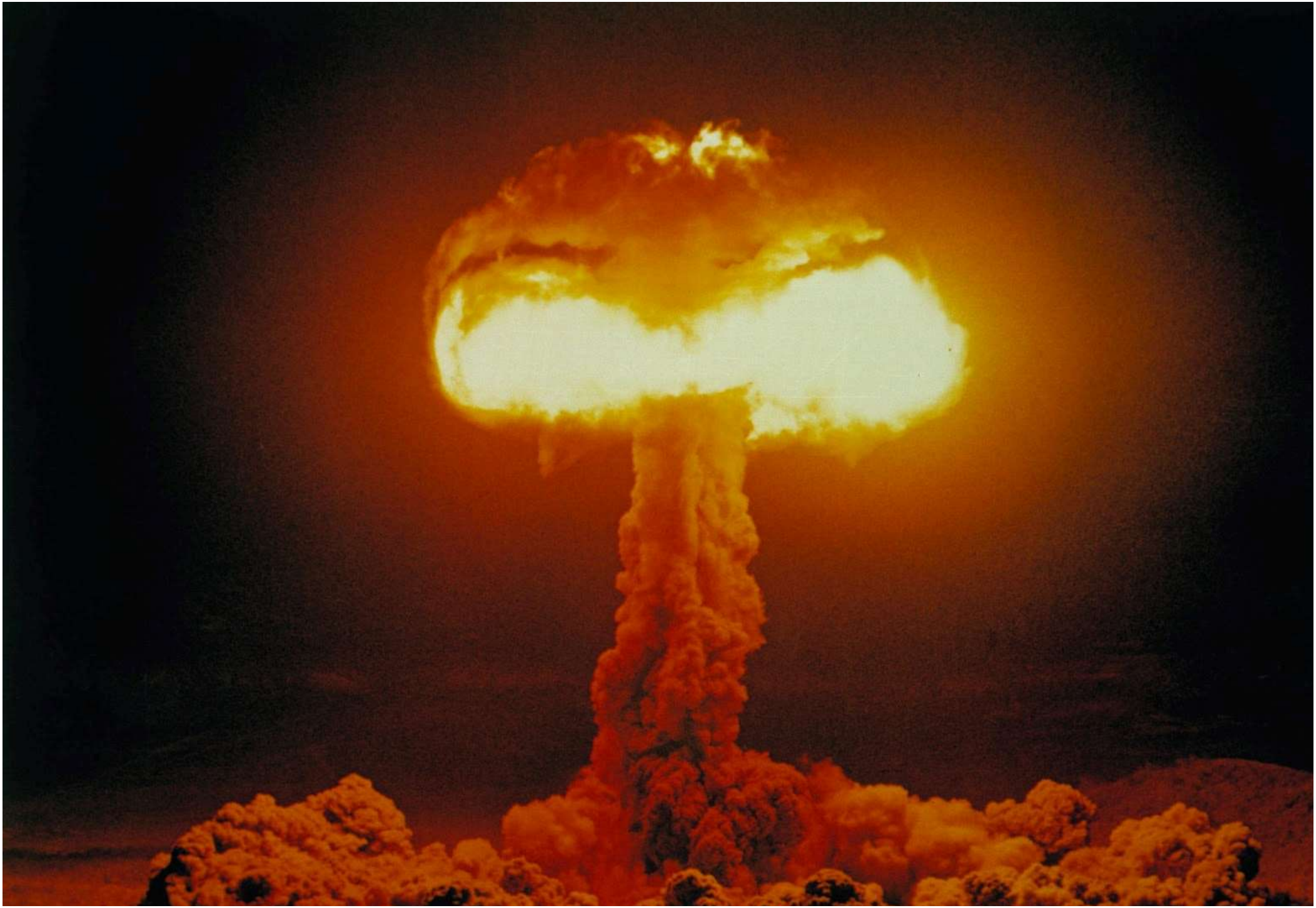


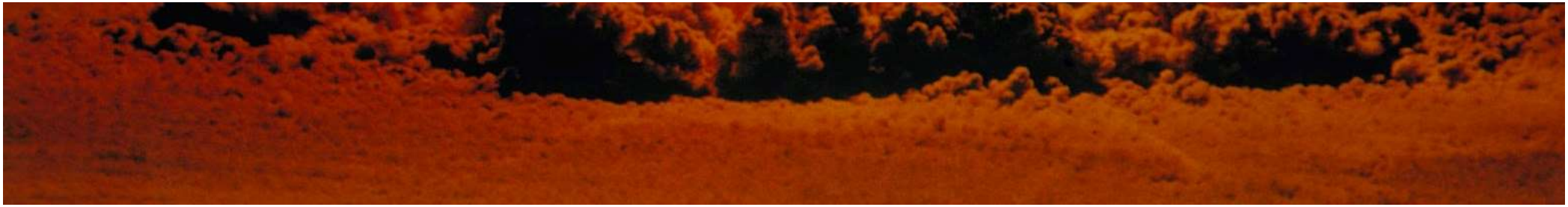
ABOVE: (animated gif) Bravo fireball shielding by clouds; analogy to city skyline shielding of most fireball radiation!

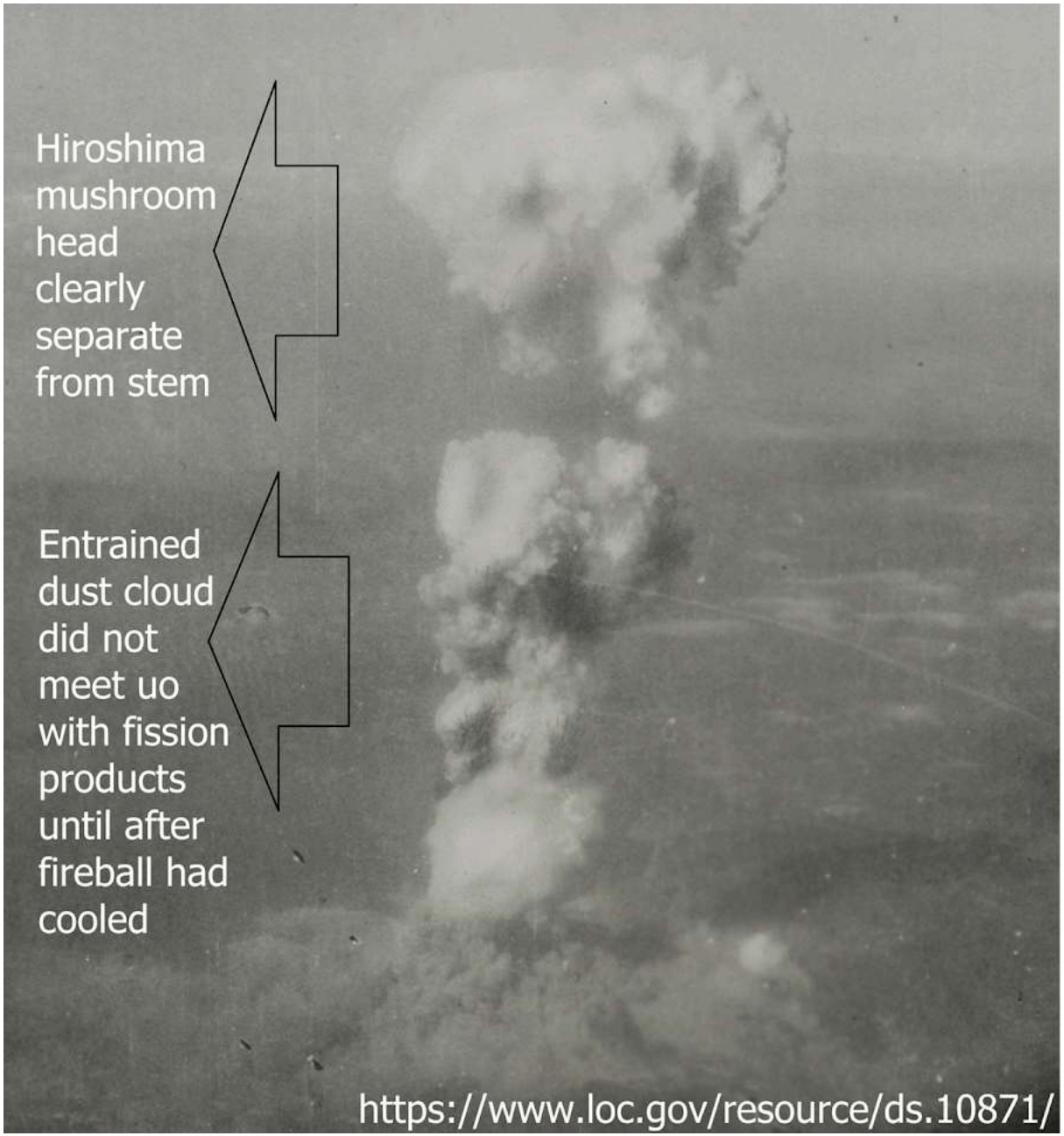




ABOVE: This pic of 74 kt Plumbbob-Hood air burst at 450m altitude by a balloon at Nevada in 1957 (it was the largest air burst in Nevada) shows very clearly exactly how local fallout is averted: soil rises up in the stem, reaching the fireball only after it has evolved into a horizontal torus or "ring doughnut with a hole in the middle", the dirt then passes up through the hole in the middle of the fireball, up at the top, colliding with cold air, before cascading back around the periphery and falling out as NON-RADIOACTIVE fallout in the downdraft around the periphery of the toroidal circulation near the outer edge of the fireball! You still get dust, but it ain't contaminated to any significant extent (maybe a very small amount of neutron induced activity from dust irradiated with neutrons near ground zero, but that's all). This detailed mechanism is key to understanding air burst neutron bomb collateral damage aversion. It must be known by everyone, to debunk liars who fear-monger on radiation fallout hazards.









Similar cloud from Dog nuclear test, Nevac

Tactical nuclear weapons as credible deterrents to end war were proof-tested in the first Cold War where they were USED (yes USED) to DETER enemy invasions. This is the most important USE of nuclear weapons, but is ignored in all anti-nuclear propaganda! The whole reason for having tactical nuclear weapons was to avoid the risk of escalation of conventional war into strategic nuclear war, in other words, *to impose a "conventional threshold" whereby the concentration of force needed to invade a territory would constitute a tactical nuclear target!* (Conventional weapons have failed to deter invasions, and provoked WWI due to the "mobilization problem" where the amount needed to defend a border is used as

an excuse by the other side to claim you are preparing for an invasion!) You don't have to actually detonate nuclear weapons to use them, any more than you have to "use" your country's gold reserve to mint coins or make jewellery, to "use" the gold: like gold, the nuclear deterrent can be kept securely in reserve and simply "used" as a bargaining chip for peace negotiations. (American W79 neutron bomb secondary stages were kept securely in the USA by Reagan during the 1980s, ready to be air-freighted in a matter of hours to Europe to rapidly halt an invasion: the USSR collapsed after this plus SDI took away their dream of global "communist" domination.) *This deterrent "effect" of nuclear weapons (together with all realistic effects of tactical nuclear weapons) is simply omitted by Glasstone's book! Regarding tactical "escalation risks", history proves that world wars occurred due to escalation of non-nuclear conventional invasions, which can then escalate to nuclear use, e.g. conventional war escalated to strategic nuclear warfare in 1945*, so claiming that abolishing tactical nuclear weapons will guarantee no nuclear war is disproved by history! Tactical enhanced neutron nuclear weapons had precisely the opposite effect: deterring escalation of conventional wars into strategic nuclear wars, and deterring conventional invasions and conventional wars from beginning, producing PEACE not war! All this is still being opposed by liars, quacks, bigots and fake news departments in the BBC and other propaganda fronts used by enemy dictators to engineer WAR (they have endless "war correspondents" yet have NEVER produced a single honest rebuttal of nuclear weapons deterrence liars, either those in the UK or in the USA!).

In the 1st Cold War tactical nuclear weapons widened the spectrum of threats covered by our deterrent umbrella. Removing any part of that spectrum of deterrence increases the risk of escalation of a Cold War into a hot war, and of a conventional war into a nuclear war. We argue that the future of peaceful nuclear deterrence is *not to ban tactical nuclear deterrence of invasions that set off 100% of the world wars of history (i.e. Belgium 1914, and Poland 1939), but to have these credible deterrents replace incredible "city busting" MAD policy, which failed in the 1930s despite media saturation of exaggerated effects of gas bomb knock-out blows, etc. We have to fight, fight, fight against lying propaganda fronts still being run in part at least by evil liars.*

It's about time "anti-nuclear" bigots and anti-quantum gravity pseudoscience bigots accepted the hard proof the universe is essentially identical to a 10^{55} megatons-yield thermonuclear explosion - i.e. "God" is a nuclear weaponeer - and learned to live with the hard fact that this technology can and will someday end all war (the sooner the better), and if applied sensibly without irrational, emotional "taboo" hysteria and Luddite groupthink pseudo "virtue signalling" insane paranoid opposition, it will do this cheaply, safely, and with spinoffs for low-cost long-range high speed space exploration (Project Orion). The Russian civil defense preparedness to enable war is still however being downplayed by the mass media, in the exactly the way Hitler argued in 1941 that Russia was a country that couldn't avoid mass famine in the Ukraine, so it couldn't possibly be prepared to resist invasion or fight back (similar arguments against Nazi deterrence are quoted by JFK in his book *Why England Slept*, e.g. Baldwin's dismissal of Churchill's warnings with the sneer that he can see the evidence that the greatest threat to the world is a totally disarmed Germany, and similar arguments were used to dismiss the threat from the "small country" Japan). If a militarist dictatorship is spending every penny on war preparations, its defunct economy well be starving or impoverishing many of its "own people" in the process. Media arguments used to marginalize or "ridicule" the threats from dictatorships in the past are being again applied today to engineer a repeat of the World Wars.

ABOVE: **George R Stanbury debunking "nuclear winter" (firestorm soot effect) and mass burns, mass fires, etc, in 1964 in a paper published in the Secret American DASA Tripartite Thermal Effects Symposium in Dorking, UK, October 1964, attended by American big shots like Dr Harold Brode! This was also summarized in the 1974 UK *Nuclear Weapons* (UK Government) book, again ignored by Samuel Glasstone and the US DoD!** On 18 March 2025 in the JFK assassination files release, **President Trump published Secret-classified FBI files on the left wing propaganda of former Ramparts and LA Times journalist Robert Scheer,** author of the lying hate attack on civil defense for credible nuclear deterrence, *With Enough Shovels: Reagan, Bush and Nuclear War* (a hatchet job attempt - that simply ignores all the nuclear testing facts - on Reagan, Bush and TK Jones of Boeing Corp, who debunked ACDA anti-civil defense propaganda). Russian propaganda is still behind continuing wars, killing millions by duping deceitful pseudo-communists in the mass media! McCarthyism opposed Russian fascism masquerading as liberal "communism" (something never achieved in the Orwellian form of dictatorial slavery of Russia in the Cold War), duping people like Lee Harvey Oswald into shooting Kennedy in support of dictators pretending to be liberals; dictators using propaganda to continue wars!

George R. Stanbury's August 1962 Restricted *Fission Fragments* magazine article using thermal shadowing data in modern cities for debunking firestorms (and firestorm soot induced "nuclear winter" hype, linked here):

"We have often been accused of underestimating the fire situation ... we are unrepentant in spite of the television utterances of renowned academic scientists who know little about fire. ... there is a considerable degree of shielding of one building by another in general. ... In the Birmingham and Liverpool studies, where the most generous values of fire-starting chances were used, the fraction of buildings set on fire was rarely higher than 1 in 20. ... And this is the basis of the assertion that we do not think that fire storms are likely to be started in British cities by nuclear explosions, because in each of the five raids in which fire storms occurred (four on Germany - Hamburg, Darmstadt, Kassel, Wuppertal and a "possible" in Dresden, plus Hiroshima in Japan - it may be significant that all these towns had a period of hot dry weather before the raid) the initial fire density was much nearer 1 in 2. Take Hamburg for example: On the night of 27/28th July 1943, by some extraordinary chance, 190 tons of bombs were dropped into one square mile of Hamburg. This square mile contained 6,000 buildings, many of which were [multistorey wooden] medieval. Thus almost every other building [1 in 2 buildings] was set on fire during the raid itself, and when this happens it seems that nothing can prevent the fires from joining together, engulfing the whole area and producing a fire storm ... When the density was 70 tons/square mile or less the proportion of buildings fired during the raid was about 1 in 8 or less and under these circumstances, although extensive areas were burned out, the situation was controlled, escape routes were kept open and there was no fire storm."

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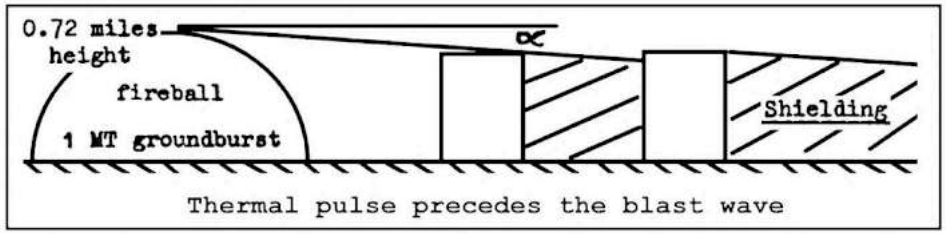
SCIENTIFIC ADVISER'S BRANCH

(Paper at Tripartite Thermal Effects Symposium, Dorking, October 1964)

IGNITION AND FIRE SPREAD IN URBAN AREAS FOLLOWING A NUCLEAR ATTACK

G. R. Stanbury

INITIAL FIRE INCIDENCE



Assuming that buildings on opposite sides of a street which is receiving heat radiation from a direction perpendicular to its length are of the same height we take the average depth of a floor to be 10 ft.

Effect of Shielding: Estimation of the number of exposed floors

Distance from explosion miles	Angle of arrival ∝°	Width of street (units of 10 ft.) 2	3	4	5	6	7	8
3	13½	.5	.5	1	1	1.5	1.5	2
4	10	.5	.5	.5	1	1	1.5	1.5
5	8	.5	.5	.5	.5	1	1	1

SPREAD OF FIRE

From last war experience of mass fire raids in Germany it was concluded that the overall spread factor was about 2; i.e. about twice as many buildir were destroyed by fire as were actually set alight by incendiary bombs

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George R Stanbury debunking "nuclear winter" (firestorm soot effect) in 1964 in a paper published in the Secret American DASA Tripartite Thermal Effects Symposium in Dorking, UK, October 1964, attended by American big shots like Dr Harold Brode!

Number of fires started per square mile in the fire-storm raid on Hamburg, 27th/28th July, 1943

102 tons H.E.	48 tons, 4 lb. magnesium	40 tons, 30 lb. gel.
100 fires	27,000 bombs	3,000 bombs
	8,000 on buildings	900 on buildings
	1,600 fires	800 fires
	2,500 fires in 6,000 buildings	

However, the important thing to note is that the total number of fires started in each square mile (2,500) was nearly half that of the total number of buildings; in other words, almost every other building was set on fire

When the figure of 1 in 2 for the German fire storms is compared with the figures for initial fire incidence of ~ 1 in 15 to 30 obtained in the Birmingham and Liverpool studies it can only be concluded that a nuclear explosion could not possibly produce a fire storm.

https://archive.org/details/TheEffectsOfTheAtomicBombOnHiroshima/TheEffectsOfTheAtomicBombOnHiroshima/page/n151/mode/1up?view=theater

ABOVE: George R. Stanbury, OBE (UK Home Office Scientific Advisory Branch) worked on the thermal shielding problem for different altitudes of air burst and for surface bursts of varying yields from 1952-64, including writing a "popular" article in the Restricted classified August 1962 *Fission Fragments* magazine ("published" to a classified circulation list by the UK Government, Home Office Scientific Advisory Branch's civil defence science journal), *savagely debunking TV propaganda from fake "academic" experts who hadn't know what they were talking about* (not to mention Glasstone, who in his 1957 and 1962 editions of *Effects of Nuclear Weapons* published fake thermal ignition data, based

on very low humidity in the dry Nevada desert during tests, despite evidence debunking him in classified reports from 1953 nuclear tests; Glasstone had clearance for Secret Restricted data to teach nuclear warhead design foundations at Los Alamos, so naughty, no excuse there!). The shielding details can be found in a vast number of classified UK government publications, one example being that shown in excerpts above, which is from a scientific conference symposium report classified CONFIDENTIAL. We uploaded that (George R. Stanbury) full 1959 CONFIDENTIAL classified city skyline thernal shielding report online: **here** and **here**. How was such a CONFIDENTIAL report supposed to DEBUNK open publications in the mass media including BBC TV, by liars launching delusional "firestorm" hate attacks on civil defense, armed with Glasstone's fake new *Effects of Nuclear Weapons*? Was this tragedy due to bureaucracy, or the deliberate use of secrecy in self-sabotage by the UK government to "do in" civil defense simply by keeping all vital data classified, preventing liars being debunked? Dad (JB Cook) was a part-time UK Civil Defence Corps instructor, 1951-7, who (after completing the local instructor course) was sent on the regional HQ Section level course to the staff college at Easingwold by Air Commodore JS Chick (Colchester's Civil Defence Officer, a former WWI fighter pilot), thus contacting Stanbury on nuclear effects, who gave lectures at Easingwold relevant to HQ Section of the Civil Defence Corps. Dad tried to explain to Stanbury and other UK government scientists the level of hostility shown by civil defence recruits to official booklets that summarized secret reports without giving out the details needed to make the claims in the booklets APPEAR credible!

They, unfortunately, were all civil servants and thus could not improve publishing policy, except to push - as much as possible - at internal department meetings, for an expansion of the UK gov's 1956 *Nuclear Weapons* booklet. The Ministers (MPs in Cabinet) responsible for civil defense were generally "pig ignorant" of science, and usually of authoritarian mindset: they wouldn't give away the secrets needed to make civil defense advice credible "in case it helped the Russians" (Russians had their own nuclear test effects and civil defence data, anyhow, judging by their own immense investment in civil defense!). Ministers also generally considered the "lay public" to have the IQ of "dead sheep", with the curiosity and acumen of "lemmings", so Ministers couldn't understand why any technical data needed to be supplied. Instead, they launched adverts *asserting* rather than *proving with nuclear test scientific data* civil defense advice! That was a gift to CND and anti-Western civil defence folk like communists, who claimed it was all money-wasting lying propaganda with no substance behind it! PATHETIC! In the end, when the UK gov decided to reclassify its "Radioactive fallout - provisional scheme of pblic control" (written entirely by Dr John McAulay of the UK Home Office Scientific Advisory Branch - as shown by the draft in the UK National Archives) from unclassified in 1956 when first published by HMSO, to "RESTRICTED" when reprinted in 1957 (!), dad had enough and resigned from the Civil Defence Corps, followed by Air Commodore Chick: "It was absurd and made recruitment of sensible folk impossible!" (Dad and Air Commodore Chick shared an interest in both aircraft and archaeology, and used the Civil Defence Landrover to visit Roman archaeological digs around Colchester, to de-stress from the civil defence situation! In 1957, dad left UK to work in Africa, needing a complete change of environment for health reasons. When he returned, twelve years later in 1969, the Civil Defence Corps was gone by order Harold Wilson obstensibly to "save" a few quid, but essentially 100% due to refusing to refute lying left wing politics and mass media propaganda attacks against its "claims"!)

~~CONFIDENTIAL~~ A12/223

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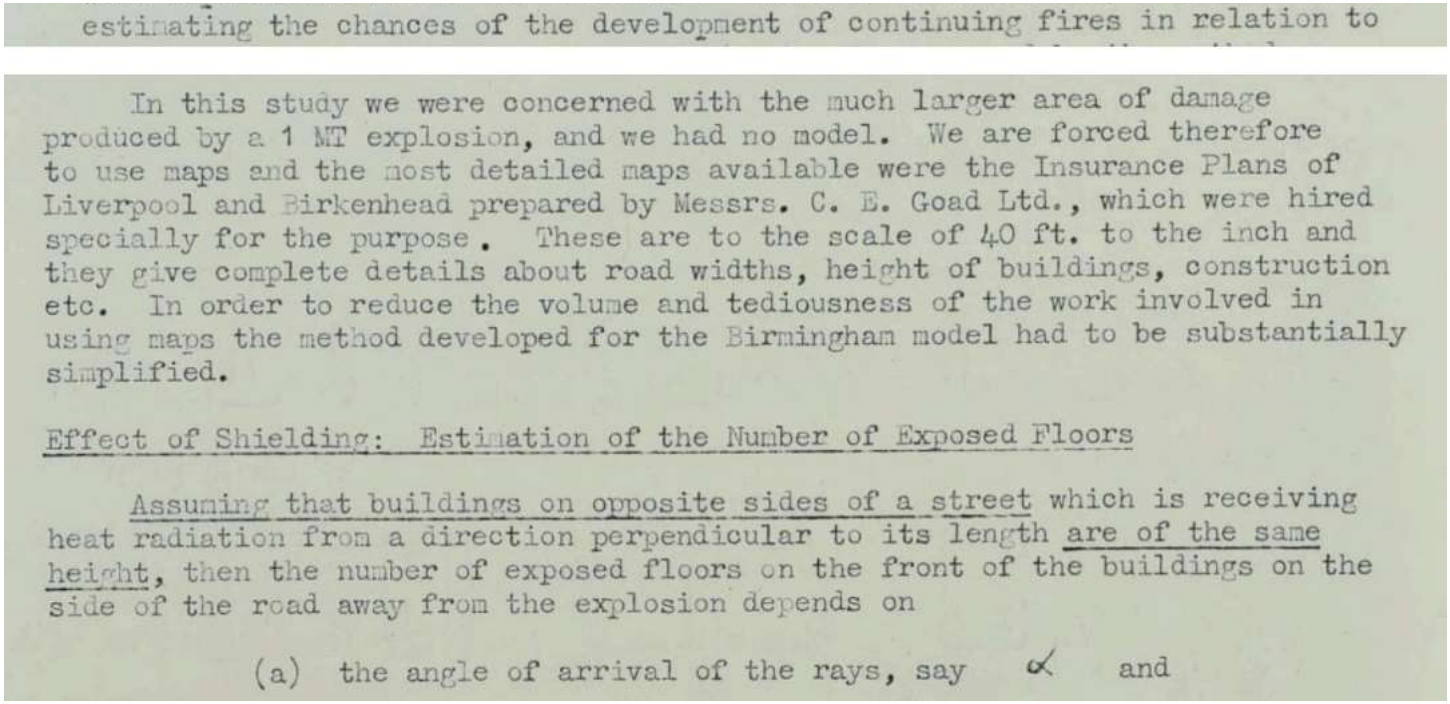
REPORT OF A CONFERENCE OF THE REGIONAL SCIENTIFIC ADVISERS FOR CIVIL DEFENCE, HELD AT THE CIVIL DEFENCE STAFF COLLEGE, SUNNINGDALE PARK, 12th to 14th MAY, 1959.

MR. STANBURY gave a talk on Study Torquemada, dealing with Fire Problems after a Megaton Explosion. He has provided the following summary:-

I. Estimation of initial fire incidence

The method used is based on that described in the Report of the Technical and Tactical Study Courses held at the Fire Service College in May, June and July 1952 entitled "The Fire Situation after an Atomic Attack on a British City" - a copy of which can be made available on application.

The British city concerned in these particular study courses was Birmingham and for this purpose a 1 in 12 scale model was made by the Birmingham Fire Brigade covering a 25° sector of the area likely to be affected by the explosion of a nominal atomic bomb over the centre of the city. With this model the problem of shielding - which is all important in this connection - could be dealt with quite satisfactorily. A lamp was set up at the point of burst in relation to the model, and it could be seen immediately which windows were exposed and which were shielded. After that it was only a question of



estimating the chances of the development of continuing fires in relation to

In this study we were concerned with the much larger area of damage produced by a 1 MT explosion, and we had no model. We are forced therefore to use maps and the most detailed maps available were the Insurance Plans of Liverpool and Birkenhead prepared by Messrs. C. E. Goad Ltd., which were hired specially for the purpose. These are to the scale of 40 ft. to the inch and they give complete details about road widths, height of buildings, construction etc. In order to reduce the volume and tediousness of the work involved in using maps the method developed for the Birmingham model had to be substantially simplified.

Effect of Shielding: Estimation of the Number of Exposed Floors

Assuming that buildings on opposite sides of a street which is receiving heat radiation from a direction perpendicular to its length are of the same height, then the number of exposed floors on the front of the buildings on the side of the road away from the explosion depends on

(a) the angle of arrival of the rays, say α and

ABOVE: **Debunking Hiroshima firestorm lying propagana by Samuel Glasstone's *Effects of Nuclear Weapons:* thermal radiation had no effect in causing the Hiroshima firestorm, which was due to the blast wave overturning now-obsolete city centre breakfast charcoal braziers in overcrowded wooden houses filled with paper screens, bamboo furnishings, inflammable futon beds. This is page 4 of the SECRET US Strategic Bombing Survey detailed fact-based report 92 volume 2 on Hiroshima, completely reversed by Glasstone's nuclear weapons effects propaganda book! This has been typeset and printed but only as a SECRET book; it has NEVER been published by the US Government in its efforts to dupe people on the truth about the Hiroshima firestorm since August 6, 1945!**

Note: Stanbury's 1964 DASA report proving firestorms and nuclear winter impossible in modern cities is cited **here** but then pathetically "dismissed" by the fake news or CND style "observation" that firestorms did occur in WWII in wooden areas of Hiroshima no longer representative of modern cities, due to blast overturning now obsolete breakfast stoves!, and we also wish to point the reader to Walmer E. Strope's pathetic discussion of Stanbury's firestorm research in his damning review of Lynn Eden's *Whole World on Fire* propaganda book, linked **here** where Strope notes that the key expert in the UK Home Office Scientific Advisory Branch at Horseferry House, London, during his 1963 visit (Stanbury) had planned the German firestorms (before going to do research at UK nuclear test Operation Hurricane). This accords with dad's understanding. The point is, Walmer E. (aka "Jerry") Strope (**the USNRDL fallout expert who used a huge array of different data - from geiger counters, film badges and even photos of the collapsing cloud plumes - to finally produce an accurate fallout pattern for the 1946 underwater Crossroads Baker nuclear test**, and later spearheaded **President John F. Kennedy's 1960s nuclear weapons effects civil defense research programme at the Pentagon to put Herman Kahn's 1957 fallout shelter basements etc suggestions into place)** misses any mention of Stanbury's key point about thermal shadowing preventing fires! This is a damning indictment of the whole nature of backdoor "secret" research; errors of misunderstanding can never be corrected under such conditions, instead becoming "Chinese whisper" style mythology that ossifies into hardened fake news dogma!

8. Evidence relative to ignition of combustible structures and materials by directly radiated heat from the atomic bomb and other ignition sources was obtained by interrogation and visual inspection of the entire city. Six persons who had been in reinforced-concrete buildings within 3,200 feet of air zero stated that black cotton black-out curtains were ignited by flash heat. A few persons stated that thin rice paper, cedarbark roofs, thatched roofs, and tops of wooden poles were afire immediately after the explosion. Dark clothing was scorched and, in some cases, was reported to have burst into flame from flash heat. A large proportion of over 1,000 persons questioned was, however, in agreement that a great majority of the original fires were started by debris falling on kitchen charcoal fires. Other sources of secondary fire were industrial-process fires and electric short circuits.

THE EFFECTS OF THE ATOMIC BOMB ON HIROSHIMA, JAPAN

Volume II

PAGE 4 OF "SECRET" CLASSIFIED REPORT, US STRATEGIC BOMBING SURVEY REPORT 92 VOLUME 2, NEVE PUBLISHED. THE FINDINGS WERE DELIBERATELY REVERSED FOR PROPAGANDA BY SAMUEL GLASSTONE!

SOURCE: https://archive.org/details/NuclearEffectsExaggerationsDebunked/Weapons%20Effects%20of%20the%20Atomic%20Bomb%20on%20Hiroshima%20Japan%20SECRET%20Extracts/page/n7/mode/1u

The conditions necessary for firestorm formation have been the subject of speculation and research for decades. Based on an analysis of expected fire starts from hypothesized nuclear detonations over Liverpool and Birmingham along with the conditions which led to the formation of the Hamburg firestorm, Stanbury [38] concluded "that a nuclear explosion could not possibly produce a firestorm." The occurrence of a firestorm at Hiroshima following the detonation of a relatively small, by today's standards, nuclear device certainly brings this conclusion into question and the large number of research reports on firestorms indicates that most researchers feel that firestorms are possible following such explosions.

NO MATE: 90% of Hiroshima fires were blast upset charcoal stoves!

GROUPTHINK B.S.!

- William M. Pitts, US Department of Commerce, NIST1R 89-4049, Assessment of Need for and Design Requirements of a Wind Tunnel Facility to Study Fire Effects of Interrst to DNA, May 1989, Sponsored by: Defense Nuclear Agency, pages 27-28. Nope. Stanbury had planned the German firstorms, and attended UK nuclear tests, and analysed Hiroshima!

[38] Stanbury, G. R., "Ignition and Fire Spread in Urban Areas Following a Nuclear Attack," in Proceedings: Tripartite Technical Cooperation Program, Panel N 3, Oct. 5-9, 1964, Dorking, England, pp. 16-1 to 16-24, Published by DISA, September, 1965.

TYPING ERROR: PUBLISHER WAS **DASA**

PITTS MAKES THE USUAL CND TYPE "ERROR" OF IGNORING THE DETAILED EVIDENCE!!!!!





Honest (unblurred, not air-brushed) photos of half mile radius around around ground zero, Hiroshima, BEFORE attack (LEFT) and AFTER nuclear attack (RIGHT).

Originally released photo of Hiroshima AFTER attack showed no surviving buildings. Shadows on this HONEST photo show that most modern city buildings survived. 90% of the Hiroshima buildings were wooden with breakfast charcoal braziers that were upset by blast, causing firestorm.

ABOVE: The insanity of "born secrecy" fact censorship, as revealed by Dr Frank H. Shelton concerning his long slog to get his 1988 book ***Reflections of a Nuclear Weaponeer*** past the censors (*text in blue typeface is hyperlinked to source documents*)! No wonder the public and mass-media are deceived over the capabilities of nuclear deterrence! Shelton **debunked Glasstone and Dolan's *Effects of Nuclear Weapons* by showing that their crater sizes were seriously exaggerated for data obtained from Pacific surface bursts on coral during nuclear tests,** and they exaggerated the fallout problem for the kind of modern cleaner tactical nuclear weapons stockpiled by Russia for the invasion of Western Europe (lethal fallout hazards are effectively eliminated by 85% clean 3.53 megaton cleaner bomb Zuni - which had a fissile spark plug in the secondary but a lead pusher rather than U238 pusher on the secondary; Shelton personally changed the 1956 Redwing testing locations to allow fallout studies to prove this fact).

HERMAN KAHN'S CRITICISMS OF STALEMATE WARS AND DEMANDS FOR CREDIBLE (NOT INCREDIBLE) NUCLEAR DETERRENCE OF ALL WARS

William A. McWhirter, *Life* magazine, 6 December 1968, pp. 110-126 (interview of Herman Kahn): **"One day in September, 1967, the U.S. moved a new weapon into the war in Vietnam. ... Its name was Herman Kahn. ... Kahn opened a briefing of senior MACV (Military Advisory Command, Vietnam) officers by stating: 'There are 6 or 7 acceptable ways to win this war, 2 or 3 unacceptable ones, and only one way to lose it, and you've found it.'** ... The Left, Kahn argued, by insisting war was unthinkable and impossible, placed the U.S. in a position where it could be blackmailed by an enemy. On the other hand, the Right, according to Kahn, by espousing a U.S. 'nuclear umbrella' to cover the entire globe, not only risked wholesale destruction, but engendered a good deal of fear and hatred from much of the world. ... The whole point of his book [*On Thermonuclear War*], in fact, was to prevent his own hypothesis from becoming a reality by exposing a U.S. policy which he considered woefully shallow and glib. ... Kahn was bitterly reproached from all sides. His colleagues were horrified that he would attempt to expose to the public what had already been for some years a bitter debate within the closed community. The furor divided RAND into warring camps; there is still a considerable difference of opinion on whether or not Herman was fired before he left RAND to open his own think tank. ... Kahn was caricatured as an enthusiast for nuclear war. He was thought to be the inspiration for *Dr Strangelove*, an impression that still widely persists. ... 'There *is* an anti-Herman Kahn hysteria,' admits Herman Kahn. Sam Cohen, a friend at RAND, speculates that Kahn was brilliant enough to have won a Nobel Prize had he remained in physics; Herman, however, never even bothered to finish his PhD. ... 'I'm big, fat and lousy Jewish,' he says, 'and they take it. They take it because they know I'm worried about the country.' ... A Kahn fact is trained to do only one thing: to lead to a Kahn conclusion. The conclusions, in turn, lead to the heart of Herman Kahn: the message. ... 'Maybe man is only the ancestor of the computer, and his only role to develop the circuits that take his place. ...'

"Herman and Jane Kahn live with their two children in the same unimposing, unpainted tract house in Chappaqua, a pleasant suburb about 30 miles north of New York City ... Jane Kahn, who was a RAND secretary when she met Herman, is slender and attractive. She is relaxed and pleasant most of the time, but seems specially coiled for Herman. She yells, bangs dishes, screeches, insults and badgers him. 'Herman,' she will loudly call from one room to the other. '*Herrrmannn. Herman!*' ... 'Herman lives in a world all his own,' she says. 'He talks to himself in the shower. I don't really understand him. I mean that. I don't understand him at all. ... He brought home our first child, dropped us off, and went to Washington. When David came, I asked him, 'Well, Herman, which it it, your son or your book [*On Thermonuclear War,* 1960]? He said that, after all, it was his second child and this was only his first book. He returned from a blizzard in New York. I asked him how the weather was. Fine. He came home from a month in Saigon. How was it? Fine. ... If I didn't know Herman was brilliant, I would have left him a long time ago.' ... The cult of science is shown by Herman to be as coarse, fallible, blustering, impassioned - and as valuable - as any other combination of human energy."

The mass media propaganda aclaiming that accidents cause world wars, or cause escalation, is rejected by **Herman Kahn (former RAND Corp physicist and then Director of the Hudson Institute) and Barry Bruce-Briggs, *Things to Come*, Macmillan, New York, 1972, pp33-4** (*note that Bruce-Briggs wrote the definitive biography of Kahn only to have it rejected by the fascist commie publishing industry, leading to a politically correct **review in the April 2001 issue of Commentary that begins by stating: "... I foresaw credibility problems if I were to review favorably a book self-published by an author after multiple setbacks on the commercial front ..."***):

"Following the [Boer] war there was an extreme anti-military, anti-expansionist, isolationist feeling in educated circles. Accompanying this were very serious attempts at arms limitation, as exemplified in the various Hague conferences ["banning" gas war on paper in 1907, for example, something that proved a delusion in WWI when gas was used by everybody] which attempted to limit the use of weapons in warfare. However, England was engaged in a massive arms race with a formidable rival (Imperial Germany) which required investments in expensive new weapons systems (dreadnaughts). This raised a major question of priorities in England. ... Anarchist terrorism of various kinds [anarchists, communists, feminist suffragettes, Irish separatists, etc.] was an everyday occurrence. Throughout the period there was a noticeable breakdown in traditional British standards of public decorum. Speakers were howled down in the House of Commons. **Interestingly enough, the group which one would expect to be the principal upholder of traditional standards - the educated elite [*see below for Kahn's detailed analysis of "educated incapacity"*] - were the worst in this regard. Faced with the possible loss of their priviledges, they became extremely nasty. Some were openly poltting with the potential Ulster insurrectionists, and when the Liberal government ordered troops deployed to suppress the Ulstermen, officers offered their resignations and the army was on the verge of mutiny. In the summer of 1914 it seemed as if the British isles were about to explode, but the impending civil war was diverted by World War I. ... This was not the first time that such unity was gained at the cost of war."**

(Emphasis added to key argument.) Without that British Empire involvement, the 1914 war would have been limited. From the Machiavellian implication of this fact, WWIII will be predicted to break out when an opponent to a foreign dictatorship decides to escalate a local war involving that dictatorship, in order to deflect attention from internal political problems and deliberately unify their people by a greater struggle. Kahn argues against ignorance of history on p30: "In fact, historians use analogy all the time. ... Certainly, nothing can be proved by analogy; but it may illustrate, teach, make plausible, and clarify." Kahn then explains on p32 that the 1900-14 period, which he terms the pre-world war age, "La Belle Epoque" aka *The Beautiful Era*, is key to understanding how a future war will break out, if we learn the 1930s lessons and have an arms race to deter aggression; without such credible nuclear deterrence, Oswald Spengler predicted four world wars per century. What's particularly important for the present world crisis in Herman Kahn and Bruce-Briggs' 1972 *Things to Come* is their analysis of pseudo-"elitist" Orwellian or pseudo-Democratic left wing propaganda driven "educated incapacity" in educational establishments to enforce lying orthodox dogmas on nuclear war at pages 27-28, 69-70, and 80-82:

[p80:] "**EDUCATED INCAPACITY** By educated incapacity [a modification of Veblen's term "trained incapacity"] we mean an *acquired or learned inability to understand or see a problem,* much less a solution. ... **Education necessarily involves selection, indoctrination, a special intellectual environment, the development of a framework of accepted 'givens' or 'facts', and learning to think about a subject in a certain required way.** However, when a **problem or the solution to a problem lies outside the accepted framework, an expert is less likely to understand the situation or see the solution [a typical example of this groupthink wilful blindness is linked here]** ... [p81:] The history of medicine is full of instances exemplifying the reluctance of the medical profession to accept new methods. Military history also abounds with blatant cases of this. This is essentially true for all professionals. 'Educated incapacity' describes this type of limitation. Educated incapacity is accentuated in the modern world because huge contemporary organizations proliferate ... beaucracies ... Even business seems to be in danger ... the graduate will be a technician rather than a decision-maker in contact with the pressures and insights of the real world . ... On an increasing number of issues, upper class and upper-middle class elites are having difficulty with relatively simple degrees of reality testing, especially with ... issues of national security, prestige, welfare, race and crime. ... [p82:] a growth of simplistic, theoretic, illusioned, and/or wishful thinking and utopian objective; and a general lack of reality testing and hard-headed or 'tough minded' analysis [*which Kahn acquired in the Burmese jungle, WWII, and which was in the 1st Cold War no-platformed by the Conintern style intellectual mission to simply soften-up or morally weaken the West by every means possible, from infiltrating universities to supplying illegal drugs etc, prior to starting WWIII*] ... The whole subject of educated incapacity is very controversial. ... The authors of the Pentagon Papers [on Vietnam by Kahn and others] have been called vicious, stupid or ignorant individuals; actually they were highly skilled and highly educated, devoted, dedicated, and decent men who were doing some brilliant things that had little to do with Vietnam, rather like a surgeon operating on a rubber duck. Educated

This book, "Reflections of A Nuclear Weaponeer"
was reviewed by about 5 agencies for
Classification and Technical Policy.
Review of the manuscript took about 2 years.
Sponsoring the review was ① the Classification
Division of DoD - DNA. ② DOE - Office
of classification + tech Policy - Germantown.
③ MOD London - I worked UK tests in Australia.
④ DoD - Public Affairs - sent to for review
⑤ office of Asst to Sec Def for Atomic Energy.

Under Contract I wrote a corresponding 15 chapter
document for DNA (Secret RD) = DNA-TR-94-19-AP
"Nuclear Weapons Testing 1945-1985 → chapters 14-15.
And chapters 1-13 DNA-TR-94-19

5-Dec. 1999 J A Shelton

incapacity can thus lead to domestic polarization and to misadventures. ... intellectuals will be discredited as the appropriate people to manage the economy or society. ... Remarks such as Governor George Wallace's about 'pointy-headed professors' may be more widely and openly accepted ..." [*E.g., racism and war should not be combatted by suppressing freedom and suppressing deterrence, but by the opposite; rationalism and creativity rather than naivety and fanatical superstition should be used to oppose dictatorial elitism and fascism; honesty not bigotry should oppose authoritarianism, etc. On page 222, Kahn points out that the various types of society are distinguished by money: the annual income per capita in 1972 dollars for the prehistoric hunter-gatherer society was just $50/year, for the 8000BC agricultural society it was up to $500/year, for the industrial revolution of 1800AD it was up to $5000/year, and for post-industrial society it is $50,000/year. The point is, these different systems exist sequentially, but still coexist in the world, causing financial inequalities that are exploited by "divide and rule"-propaganda based warmonging left wing fronts for world revolution, such as the paranoid delusional mass media.*]

[p150:] "The US strategic forces [before 1968] were relatively well protected and more numerous than Soviet forces. ... The US could destroy the greater part of Russia's forces. What Russian forces survived a US strike would be relatively limited in effectiveness ... The implicit *bargaining* advantage this perceived imbalance provided was probably more important than the actual threat. Even a pro forma and operationally meaningless superiority may lead the 'superior' nation to feel it is entitled to political advantages for its extra strength, and that the other government should back down. In the 1970s the American strategic advantage either will have disappeared or come close to disappearing. [p151:] For the first time since World War II the Soviets will have ... even a sense of superiority. We know that the last time the Soviets acted out of a feeling or parity or impending superiority ... they tried to gain immediate political advantage. ... [p180:] The United States has a population of 200,000,000 people, a GNP of £1 trillion dollars, and armed forces of more than 3,000,000. All of Vietnam has a population of 30,000,000, a GNP of $6 billion, and armed forces of 1,000,000. Even if the extreme dove position that all the Vietnamese are against us except a few puppets is true, how could the United States possibly be defeated in Vietnam? ... There is only one answer - treachery. Our boys in the field, brave as they were, could not possibly win because they were stabbed in the back. ... [p181:] Following this line of reasoning, it is not difficult to write a scenario of some sort of resurrection of McCarthyism ..."

US President Ronald Reagan's speech warning against commie propaganda, National Association of Evangelicals, March 8, 1983:

"... that shrewdest of all observers of American democracy, Alexis de Tocqueville, put it eloquently, after he had gone on a search for the secret of America's greatness and genius, and he said: "... if America ever ceases to be good, America will cease to be great." ... "In God We Trust" is engraved on our coinage. ... There is sin and evil in the world, and we're enjoined by Scripture and the Lord Jesus to oppose it with all our might. ... There is no room for racism, anti-Semitism, or other forms of ethnic and racial hatred in this country. ... And this brings me to my final point today. ... Morality is entirely subordinate to the interests of class war. And everything is moral that is necessary for the annihilation of the old exploiting social order and for uniting the proletariat. ... We saw this phenomenon in the 1930s. We see it too often today. ... It was C. S. Lewis who, in his unforgettable "Screwtape Letters," wrote: "The greatest evil is ... is conceived and ordered; moved, seconded, carried and minuted in clear, carpeted, warmed, and well-lighted offices, by quiet men with white collars and cut fingernails and smooth-shaven cheeks who do not need to raise their voice." Well, because these "quiet men" do not "raise their voices," because they sometimes speak in soothing tones of brotherhood and peace, because, like other dictators before them, they're always making "their final territorial demand," some would have us accept them at their word and accommodate ourselves to their aggressive impulses. But if history teaches anything, it teaches that simpleminded appeasement or wishful thinking about our adversaries is folly. ... The real crisis we face today is a spiritual one; at root, it is a test of moral will and faith."

Evil lying WMD escalation propaganda for "security through arms control/disarmament" (including mass media hate attacks on anyone who told the truth, masterminded by the Prime Ministers Baldwin, Chamberlain and other decrepid lying loons who were supported by the gullible and corrupted fascist mass media) was debunked by Herman Kahn because it permits genocide: (1) escalation to WMD poison gas knock-out blow in 1939 was promised by BBC and other mass-media and "disarmament experts" since February 1927 (when Lord Noel-Baker gave a BBC radio propaganda broadcast lying that gas masks were impossible and all experts agreed this, a point emphatically denied in secret meetings by the Porton gas defense scientists but not in public due to "secrecy") and both sides had gas in 1939, but it wasn't used as a military weapon in WWII or even in gas chambers (where pesticide or CO exhaust were used, not tabun or mustard gas weapons), and (2) the banning of WMD poison gas was established prior to WWI when it was banned and outlawed by the Hague Conventions in 1899 and 1907, *prior to WWI, but it was regardless made and used by all sides in WWI.* This firmly debunked the "arms control/disarmament will prevent mass destruction"-mythology type CND propaganda hoax, but simply saying so is simply a "taboo", like 100% of facts on Hiroshima (as opposed to lying populist war-mongering, anti-deterrence disarmament propaganda). No newspaper will put this on the front page: they're afraid of exposing the war hoax, or else they profit by selling war news to readers and the "war correspondents or war editors" deliberately suppress the truth, usually by referring to Glasstone's book or "nukemap", or Professor Freedman's opinions on civil defense! On the other hand, in August 1945 conventional war escalated to strategic nuclear war. Would it have done so if we had tactical nuclear weapons to deter the invasions that set off the war in the first place?

"Most Soviet nuclear weapons were tactical, designed for crushing NATO if a conflict arose with Warsaw Pact forces in Europe; the total Soviet arsenal in 1960 of 1,700 bombs and warheads included only about 350 strategic weapons." - Richard Rhodes, *Arsenals of Folly,* Simon and Schuster, 2008, p86. (Sadly, that's a rare accurate statement Rhodes makes in any of his books, which are mostly based on anti-Kahnian propaganda lies about strategic bombs on cities, originating in the Kremlin to cause Russian appeasement.)

Tactical nuclear weapons have always been the key threat, openly moved to Belarus by Russia for this deterrent signalling purpose, **are now being used by Russia to deter our decisive intervention in the Russian-Ukraine war, because we don't have W33, W48, Mk54, or W79 dedicated tactical deterrents to prevent invasions any longer**.

Samuel T. Cohen, *Low-yield fusion weapons for limited wars,* RAND report R-347, 1 June 1959, Secret - Restricted Data classified, p.2:

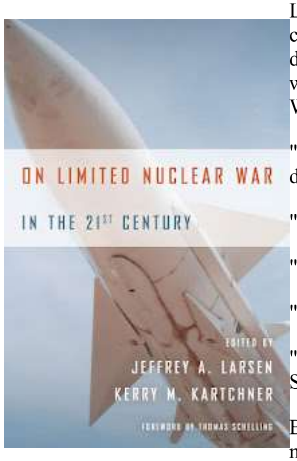
"If we are able to use these weapons, and the enemy does not have them, their military effect can only be matched by his use of larger-yield dirty weapons - with the political and propaganda penalties their use implies. **Of course the converse will also be true**." (Emphasis added)

March-April 1974 Congressional Hearings, *Nuclear Weapons and Foreign Policy*, p220:

"Some idea of what the weapons makers are proposing can be gained from a paper written last June by R. G. Schreffler and W. S. Bennett of the Los Alamos Scientific Laboratory. Expressing what they said were personal opinions, Schreffler and Bennett envisioned a U.S. tactical nuclear arsenal of perhaps 50,000 to 100,000 small-yield weapons. With these, they said, collateral damage 'can really be made insignificant - literally preferable to the devastation that accompanies conventional warfare.' Had there been the right weapons in Vietnam, they wrote, '. . . it is reasonable to ask if a successful defense might not have been mounted with discriminating use of nuclear weapons and far less collateral damage than Vietnam has already suffered'."

US Defense Secretary McNamara, February 14, 1968 testimony before a subcommittee of the Congressional Committee on Appropriations for 1969:

"I think the answer is we must continue to build tactical nuclear weapons and deploy them ... We have gone ahead to build the weapons and deploy them. I have increased the inventory of such weapons in Europe 100 percent from 3,500 to 7,000." [All were removed in 1992.] - quoted on p213 of March-April 1974 Congressional Hearings, *Nuclear Weapons and Foreign Policy*.



Larsen and Kartchner's 2014 *On Limited Nuclear War in the 21st Century* in chapter 10 *On US Preparedness for Limited Nuclear War* by Bruce W. Bennett (of RAND Corp) states at pages 215-7: "In a highly classified document, each president directs the military to plan nuclear options for specific types of contingencies. This document is not available for public review and discussion. ... The intent here is to describe the potential nuclear missions US forces may be tasked to execute ... The US 'nuclear umbrella' is extended to protect US allies and partners ... to assure the ally that it need not develop its own nuclear weapons [if the ally believes the USA has a credible *deterrence* of invasions, e.g. tactical weapons to *deter* aggression, without relying on strategic retaliation strikes which may be prone to escalate quickly into WWIII, for which the USA is not adequately prepared with civil defense]. ... The conditions potentially leading to limited US nuclear weapon use may include:

"1. An adversary demonstration nuclear attack. An anniversary uses one or a small number of nuclear weapons ... to signal his capability and will to use nuclear weapons ... The adversary attack might be a pure demonstration (causing little real damage), an electromagnetic pulse (EMP) attack, or a very selective attack against ... military targets such as air bases or ports.

"2. An adversary non-nuclear battlefield breakthrough ...

"3. An adversary selective nuclear attack ... against a city or military target, causing enough direct damage that there would tend to be stronger US incentives to respond with a nuclear weapon.

"4. An adversary incapacitating nuclear attack ... intended to incapacitate key US or allied military or leadership capabilities. ...

"5. The collapse of a nuclear state and/or loss of control of its nuclear weapons [leading to a possible need] to destroy adversary nuclear weapons that may otherwise pose a risk to a US ally or the United States."

Bennett adds on pp221-3 of Larsen and Kartchner's 2014 *On Limited Nuclear War in the 21st Century:* "The author believes that conducting a limited nuclear war is indeed possible. It would involve using nuclear weapons with constraints on the number of weapons employed and the objectives of the US attacks. ... Indeed, the new 'Nuclear Employment Strategy' ... says 'The United States will not intentionally target civilian populations or civilian objects'. [Quote: US Department of Defense *Report on Nuclear Employment Strategy of the United States* p4.] ... The new 'Nuclear Employment Strategy' formalizes the long-held expectation that US presidents would prefer a proportional response to adversary use of nuclear weapons [according to the Law of Armed Conflict, ignored by anti-nuclear fanatics in populist media] ... For example, if an adversary used two nuclear weapons for a nuclear demonstration, an EMP attack, or a nuclear attack on US or allied ground forces, many expect that a US president would be naturally inclined to respond using about two nuclear weapons against similar adversary targets. ... But such a response would not meet the likely public demand to neutralize the threat ... If an adversary government collapses or otherwise loses control of its nuclear forces, those forces could be used against the United States or its partners or could be given to states or organizations that would do so. To prevent this ... the United States may need to launch a preemptive counterforce campaign, including some use of nuclear weapons to more quickly and completely remove the threat. Some US presidents might balk at such a 'first use' of US nuclear weapons, but others may perceive the threat as sufficiently serious to justify such attacks."

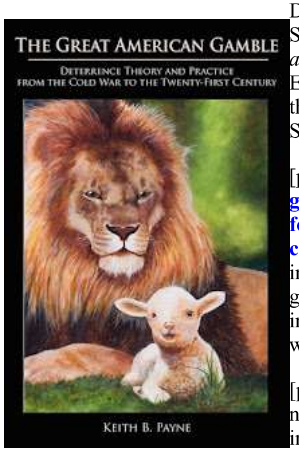
Fortunately, Bennett is too conservative here because, as we'll prove in great detail below, Bennett's nuclear effects data for collateral damage, e.g. from Glasstone, is false propaganda debunked by secret data from nuclear tests, Hiroshima and Nagasaki. Larsen and Kartchner's 2014 *On Limited Nuclear War in the 21st Century* includes a chapter by James M. Smith, the Director of the USAF Institute for National Security, *Limited Nuclear Conflict and the American Way of War,* summarizing on pages 257-9: "This chapter paints a fairly dark picture of American nuclear experience and expertise, and of the declining position of all things nuclear in American strategic culture, the American way of war, and American military service culture. This bodes ill for the United States' ability to think about, plan for, and acquire the operational capacity to conduct limited nuclear war, if that contingency is forced upon it. ... Deterrence is fundamentally a psychological instrument ... Any perception of a 'crack' in the US arsenal, if not addressed forcefully, could certainly negatively impact others' perception of America's capability and also of its deterrence credibility [i.e., if you can't use a weapon under any circumstances, it's not a credible deterrent any more than poison gas stockpiles on both sides were back in 1939]. ... Credibility is the bedrock of deterrence [so the public and enemy need to know you are ready to make war if needed] ... But there is also a deep and wide deficit in nuclear experience and expertise among the uniformed military leadership. ... As the United States has lost much of its base at the strategic deterrence end of the spectrum, it has also lost almost its entire base for managing a limited nuclear war. Tactical nuclear weapons have been withdrawn .. except for a small number [~100] that remain forward deployed in Europe in support of NATO. Only a small number of NATO-based aircraft and aircrews maintain mission proficiency in their employment. As the Alliance has declared that these are solely political weapons, the morale and incentives to study for and prepare for their possible use have disappeared. Nuclear targetting is a dying art, and only a handful of planners retain interest and expertise in limited nuclear warfighting."

Schelling's War for Coercive Punishment, versus Kahn's Credible Deterrence of the Invasions that set off both World Wars, and Field Marshall William Slim's empirical "the more you lose, the fewer you lose" strategy (as proved theoretically by the Lanchester Equations of war, applied to battles like Iwo Jima) for Clausewitz's war for the disarmament of aggressors, to guarantee peace on earth without risk of resurgence, if deterrence fails

The key public-domain (mass media, political debate, science research, etc.) paradigm shift urgently needed to ensure a stable peace through safe, credible deterrence has been clearly explained by **Major Brent D. Ziarnick's *Space based counterforce in the second nuclear age*, AD1012753, at pages 6-10 (PDF paginations 10-14):**

"In his book *The Great American Gamble* (2008), Keith Payne argues that two major nuclear deterrence schools of thought emerged from the Cold War: a “stable balance of terror” theory attributed to Thomas Schelling, and a “US Advantage” school championed by Herman Kahn. Understanding each school’s basic tenets is critical to this study. ... Schelling argued that a “stable” balance of terror between the United States and the Soviet Union was the best deterrence policy, where no country would be dominant in strategic capability, and no population would be safe from the other. Mutual vulnerability would ensure that both sides acted prudently and cautiously in international relations. ... Schelling maintained that “in the absence of the ‘reciprocal fear of surprise attack’ that might ignite a nuclear war, a ‘stable balance of terror could be established to provide reliable, predictable mutual deterrence.” Therefore, Schelling advised that anything that would incite fear of a possible surprise attack in the enemy (such as missile defenses or civil defense aimed at minimizing the destructive potential of the enemy’s deterrent forces) was “destabilizing,” and worked against deterrence. ... Kahn presented an alternative view of deterrence based on fundamentally different assumptions from Schelling’s. ... Kahn rejected Schelling’s belief that a system which gave the US superiority was “destabilizing.” Indeed, for Kahn the only “stabilizing” force in deterrence was a clear and obvious American strategic superiority that conferred real advantage. Kahn advocated more expansive offensive and defensive US strategic force requirements that would both be able to deter Soviet aggression and protect the American population in case deterrence failed. ... Kahn’s denial-based deterrent posture was not simply deterrence, but “deterrence plus” the ability to prevail in a nuclear war while defending the population from catastrophic loss. To Kahn, the ability to wage nuclear war enhanced deterrence because “deterrence requires the capability to fight, survive, and win along the entire spectrum of nuclear conflict, from limited to total.” ... Kahn would argue, of course, that defense is preferred because Schelling’s deterrence is not stable at all, or at least that Schelling’s deterrence simply ignores the problem of *what if deterrence fails?* [Schelling switched to the Kahnian doctrine in his foreword to the 2014 compendium *On Limited Nuclear War in the 21st Century,* due to the Russian tactical nuclear threat, despite having been awarded the Nobel Peace Prize in 2005 for his early anti-Kahnian game theory of war with "parity" and M.A.D. policy beloved by appeasers/arms controllers and Vietnam war controllers like Robert McNamara.] ... **Here is the critical difference between the First and Second Nuclear Age: where in the First Nuclear Age nuclear warfare at any level was “unthinkable” and Schelling’s deterrence assumptions appeared viable, the Second Nuclear Age is one where nuclear war is very possible**." [Emphasis added.]

THE GREAT AMERICAN GAMBLE by Dr Keith Payne begins with recommendations on the flyleaf, including Professor William R. Van Cleave, founder of the Department of Defense and Strategic Studies at Missouri State University: "It is no exaggeration to say that this book is now the definitive study and explanation of American strategic nuclear deterrent concepts ... It is essential to understanding the 'why?' of US deterrent and arms control policies."



Dr Keith Payne's 2008 *Great American Gamble* at pages 2-298 argues lucidly: "The US capability to threaten nuclear retaliation ... and vulnerability of US society to Soviet nuclear attack, were believed [by the Schelling dogma] to be the basic ingredients of a 'stable' balance of terror. ... [p6:] Instead, Kahn emphasised the requirement for US strategic defensive capabilities to help establish *an asymmetrical and advantageous imbalance of terror* favoring the United States. ... [p27:] The basic structure of NATO's security situation did not change much during the Cold War. In 1987, the US Commander in Chief, US European Command, General Bernard Rogers reported in testimony before the Senate: 'I say to you, as I have said before this committee, that if attacked conventionally today, NATO would face fairly quickly the decision to escalate to the nuclear response in order to try to cause the aggressor to halt his advance' [US Senate, Committee on Armed Services, National Security Strategy Hearing, 100th Congress, 1st Session, 1987, p922].

[p28:] "In 1962, President Kennedy anticipated this deterrence dilemma in a meeting with his military [this is a secret tape-recording, not an alleged quotation]: **'Our big danger is the Soviet Union is going to get in a position where they are going to have ... such nuclear capabilities to deliver ... that we will not initiate a nuclear attack on them. And that being true, then they will use their conventional force to take whatever they want ... in Europe and in Asia. That is the danger we are going to face, that I'll - or whoever is President - will not want to fire this [nuclear] weapon to stop this conventional attack.'** [p30:] According to Kahn, extended nuclear deterrence [of allies] based on a threat that would be suicidal if executed could be viewed as an incredible bluff, and consequently could invite challenges. ... Basing deterrence on threats that ultimately would be self-destructive was folly on multiple levels: it could lead to an incredible deterrent, invite challenges, and offer no useful planning guidance following the failure of deterrence. Kahn scorned theories ... that could be seen as incredible because they risked national destruction. ... It was Washington, not Moscow, that would have to threaten initial nuclear escalation [in response to a European invasion "guaranteed" protection by NATO, like London's security guarantees to Belgium and Poland that triggered war in 1914 and 1939, respectively]; a war that remained conventional would be to the Soviet advantage. ...

[p33:] "In contrast to Kahn's insistence on the US need for threat credibility ... Schelling maintained that the 'uncertain element' of what *might* happen in response to a Soviet attack ... would make extended nuclear deterrence 'work'. Soviet leaders would fear that the United States might not behave rationally, or in the 'fog of war' might 'blunder' toward strategic nuclear war, even if it would not rationally, intentionally choose such a course because it would be self-destructive ... It might be suicidal for the United States to escalate to the employment of strategic nuclear weapons, but the threat of escalation could provide extended deterrence nonetheless because the Soviet leadership could not be certain that US actions would be prudent, or precisely and tightly controlled. [References: Schelling, *Arms and Influence* pp38-47, 97-98, and Shelling *Strategy of Conflict* pp188-203] ... [p34:] Kahn ... wanted a deterrent that left little to chance ... Schelling suggested ... that Soviet fears of the uncertain possibility of US nuclear escalation could deter adequately, even in the context of US vulnerability to ... nuclear retaliation. ... with his analogy of 'rocking the boat'. According to Schelling, 'If I say 'Row or I'll tip the boat over and drown us both,' you'll say you don't believe me. But if I rock the boat so that it *may* tip over, you'll be more impressed. ... to make it work, I must really put the boat in jeopardy.' [Ref: Schelling, *Strategy of Conflict* p196. The dangers with this whole approach of Schelling is that he relies on the gamble risk-taking to make deterrence credible, while simultaneously arguing not to have ABM/civil defense to mitigate the effects of a failure of deterrence, and then has the temerity to call the resulting half-baked mess a stable balance of terror]. ...

[p35:] "The practice of deterrence is affected dramatically by whether Schelling's 'threat that leaves something to chance,' or Kahn's credibility from a threat that leaves little to chance, is judged to be an adequate basis for reliable deterrence. ... [p39:] Critics of Kahn's work reflected little comprehension ... That was perhaps best illustrated by the reply Kahn received from the editor of *Scientific American*, Dennis Flanagan, following his offer to write a rebuttal to the review by James newman appearing in *Scientific American* ... Kahn proposed to title his response to Newman, *Thinking About the Unthinkable*. Flanagan reportedly replied to Kahn: '... surely it is more **profitable** [EMPHASIS ADDED] to think about the thinkable ... It is for this reason that we must decline your offer to give us your article'.

[Thus, Kahn was "no-platformed" and unable to reply to *Scientific American* liars, because it was not "profitable" for *Scientific American* to publish the truth. The same applies to the mass media today, which refuses to debunk nuclear deterrence liars. Dr Keith Payne and Professor Colin S. Gray, both former Hudson Institute researchers under Herman Kahn, make clear the contrast between Schelling's dangerous game theory based "parity, or strategic balance of terror"-dogma and Herman Kahn's history-based "credible wide-spectrum deterrent", and point out the reasons why nuclear weapons effects are exaggerated - *the more you exaggerate, the fewer weapons you need, saving you more bucks! Basically, as Payne explains on p63, Schelling's dogma was helpful because you can simply base your nuclear deterrent force on the number of enemy cities, as if that is a credible deterrent for 3rd party invasions like Ukraine 2022! However, they don't go into the details of the exaggeration of nuclear weapons effects, or how "studies" of civil defense have been repeatedly sabotaged by secretly reducing the true protection afforded by even cheap shelters against blast and radiation. This is, I believe, why they are marginalised. Until they go back to the facts at Hiroshima, Bikini, Nevada, Monte Bello and Maralinga, they won't be speaking the only language that the scientifically-literate public and top politicians like Trump - a key audience worth communicating with - can understand.*]"

[p47:] "Most important is not whether Schelling, Bundy, Wiesner, York, Synder, Crowe, Drell, or Brodie believed that an adequate US nuclear deterrent could come from the capability to threaten one or 100 cities, *but that threatening Soviet cities was deemed the basis* for US deterrence ..." [**At this point, we part company from Payne, because he argues that unprotected modern concrete cities are "extremely vulnerable", a claim disproved by survival of modern concrete buildings in Hiroshima and concrete structures at nuclear tests, never mind the point that Russian cities have hard shelters unlike American cities (thus asymmetry);** although he is making the point that for McNamara this was very convenient because it meant a cheaper deterrent than one which would really be stable and end all costly wars.] [p49:] Kahn's goal was to identify a logical mechanism for deterring Soviet nuclear **or conventional attack on the United States and its allies given the realities** [Emphasis added.] ... Kahn wanted to harness the deterring effect of credible nuclear escalation threats. For this purpose, he sought a US deterrence strategy based on a credible threat of deliberate US escalation to deter ..."

[p267:] "Indeed, the British declared war despite the fear that the '... bombing of London and the great cities would lead to casualties on the order of hundreds of thousands or even millions within a few weeks. **We thought of air warfare in 1939 rather as people think of nuclear warfare today.**' [Quote: Harold Macmillan, *Winds of Change 1914-1939* p575.] In these cases, there were plausible reasons for the willingness of leaders to take the path to a prospectively catastrophic war despite recognition of the grave uncertainities and fears. ... a 'least miserable' course had to be chosen. Prudence born of the fear of escalation has been overshadowed frequently by such considerations. Leaders under great pressure deliberately and rationally can choose paths that involve potentially fatal risks - not always because they want to, but because they believe they have no tolerable alternatives."

[p269:] "Unfortunately, what was deemed 'unthinkable' by [McGeorge] Bundy may be 'thinkable' or even welcomed by other leaders also capable of rational decision making."

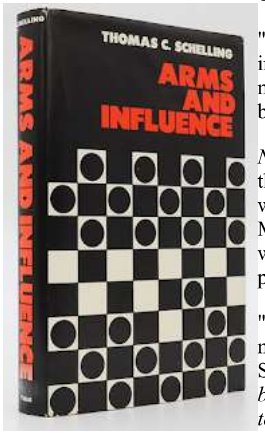
On p271, Payne quotes Professor Bradley Thayer's psychology research-based dismissal of Schelling's theory for stability using strategic parity:

"How the brain interprets actions and makes decisions is complicated, imperfect, greatly depends upon emotions, and varies among humans. ... Accordingly, it is fundamentally naive and dangerous to assume a similar outcome ... in all situations ... universal rationality in the face of a nuclear deterrent threat is irredeemably flawed." - Bradley Thayer, Thinking about nuclear deterrence theory, *Comparative Strategy,* v26, n4, July-September 2007, p312.

"... the neurophysiology of negative stimulation can be so unpleasant that people will avoid interacting with people who produce such stimuli, even though it may be essential to their job for them to have such interaction. The consequences of this for restricting or withholding negative but vital information may obviously be very serious." - *Recent Findings in the Biosciences: Implications for DoD,* US Department of Defense 2002 Summer Study (quoted by Payne at p272).

At pp274-5, Payne points out the insanity of Cuban leaders putting pressure on Russia for nuclear war, during the October 1962 crisis: "We now know what we did not even suspect at the time: Fidel Castro and Che Guevara [the bearded terrorist depicted on T-shirts worn by commies] encouraged the Soviet leadership to launch a nuclear attack against the United States, using the Soviet missles stationed in Cuba. Castro and Guevara demanded that the Soviets use their nuclear weapons - with a willingness to accept Cuban national martyrdom as the price of destroying capitalism. Soviet Vice President Mikoyan's response ... 'We see your willingness to die beautifully, but we do not believe it is worth dying beautifully'." [God help US when Russian leaders share the mentality of those Cuban leaders.] [p275:] Similarly, even after the atomic destruction of Hiroshima, the Japanese War Minister Korechika Anami sought to continue the war ... 'Would it not be wondrous for this whole nation to be destroyed like a beautiful flower?' ... preserving the Japanese cultural value of honor and sacrifice was a higher priority than avoiding the risk of Japan's societal destruction. ... [p276:] The 1973 Yom Kippur War is an even more striking demonstration ... On October 7, 1973, Egypt and Syria launched a massive, well-coordinated. surprise assault against Israel, despite the fact that Israel was widely believed by that time to have a nuclear retaliatory capability. ... For American leaders convinced that prudence in the face of great risk must lead inevitably to cautious behavior, the Arab decision to strike against a punitive nuclear-armed opponent was inexplicable."

[p281:] "The perception of an opponent's weakness also can invite provocation, crisis and escalation: British appeasement of Germany in 1938 over Czechoslovakia contributed to Hitler's underestimation of Britain's likely response to his later attack on Poland ('Our enemies are little worms, I got to know them at Munich' - Adolf Hitler quoted by Max Domarus, *Hitler: Speeches and Proclamations 1932-1945, The Chronicle of a Dictatorship, v3, 1939-1940,* p1663) ... [p282:] "There is sufficient evidence since 1945 to conclude without reservation that, contrary to the centerpiece of the [Schelling] balance of terror's logic, the *inherent risks and uncertainties of nuclear escalation do not reliably and predictably prevent deliberate or unwitting leadership behavior that could ignite a deadly escalation process* [Emphasis by Payne.] ... *Some* of Schelling's comments during the cold war suggest his acknowledgement that he was dealing more in the *hope* that leaders would learn to be prudent and cautious, than the legitimate expectation of such thought and behavior ... [p293:] Deterrence may unexpectedly fail, and US damage-limiting capabilities [e.g. civil defense, ABM, and tactical nuclear warfare to destroy enemy nuclear stockpiles before they are launched] may be the *only* means for mitigating the catastropic consequences ... [p298:] Ambiguous threats and commitments may be attractive because they leave 'wiggle room' for the deterrer. [But] ambiguity *may degrade deterrent effect or even incite provocation.* [Emphasis by Payne. Ref: Michael Altfeld, Uncertainty as a Deterrence Strategy: A Critical Assessment, *Comparative Strategy* v5, n1, pp1-26] Rather than deter, ambiguity of US threat and commitment may offer an opening that provokes opponents who are highly motivated, desperate, or high-risk gamblers."



Thomas C. Schelling, *Arms and Influence,* 1966, 2008 reprint with additions, at pages 170-171:

"*Coercive warfare* The theoretical question ... assumed sudden relevance with the initiation of the bombing campaign in North Vietnam in February 1965. ... the bombing of North Vietnam ... was not an all-out interdiction campaign, exclusively designed to cut supplies to the Vietcong; had it been that, there would have been little reason not to do the bombing on a larger scale at the outset. The bombing had an evident measure of coercive intent behind it: it was evidently designed, at least partly, to inflict plain loss of value on the adversary until he began to behave. The bombing was widely discussed, and sometimes explained by the Administration, as a means of putting pressure on the government of North Vietnam ..."

Note that in his original Preface, dated November 15, 1965, Schelling discounts his own analysis of Vietnam with the following "two-way bet" (weasel words indeed): "the several pages on the coercive aspects of the bombing of North Vietnam in 1965 do not mean I approve of it (and, in fact, I am not sure yet)..." (in other words, he'd approve of his own tactic of coercive pressure via bombing North Vietnam if won the war, but not if it failed, what Mr Lenin would doubtless praise as a "useful idiot" book). Schelling's minimal force "war for coercive punishment"-concept had influenced the Vietnam War controllers ike McNamara, simply because it had been published in 1960 as *Strategy of Conflict,* in the same year as Herman Kahn's credible deterrence argument *On Thermonuclear War*, but Schelling was preferred because it won greater ill-informed mass media praise, and particularly, less paranoid lying "fake news"-style *opposition*, from the communist-influenced mass-media. Schelling does admit in small-type footnotes to key problems with his strategy, e.g. *Arms and Influence,* footnote 17 on page 159:

"As [General] Maxwell Taylor has pointed out [*The Uncertain Trumpet,* Harper, NY, 1960, pp7-10, 38-9], beliefs in certain thresholds can become embodied in the planning process, thereby become reflected in military capabilities and command procedures, and thus become more tangible, more rigid. If a government sufficiently believes that any nuclear war will inevitably become 'all-out', or that any engagement of Soviet and American troops must become 'all out', there may be *inadequate plans and inappropriate forces for the contingency that got ignored [e.g. the present situation of 2,000 Russian neutron bombs opposed by 100 dirty B61 general purpose nuclear bombs]. In the end it* is *then more dangerous to cross the threshold; choices become more extreme; the threshold is less likely to be crossed but, when crossed, may have to be crossed by a great leap [e.g. starting WWIII]. ... The Vietnamese case [controversy over whether or not to bomb North Vietnam SAM missile sites run by Russians, in case it set off an escalation of Russian reprisals, ending in WWIII] illustrates that many thresholds can become ambiguous, especially if pains are made to make them so. Any Russians at the SAM sites ... could be denied by the Soviet Union to reduce the embarrassment to both sides [oh come on, Russia will do whatever it wants under the circumstances, not whatever you suggest to "reduce embarrassment", mate!] and in other ways the drama of the 'incident' could be played down. The fact that there was no announcement by either side that the sites had been attacked, until several days after the first attack, tended to dilute the incident and make it more casual."* (Emphasis added.)

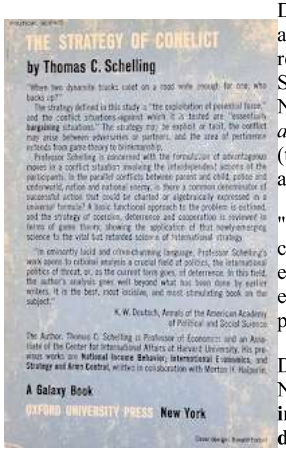
Schelling's argument to not use Kahn's credible deterrent of major provocations, but instead to use conventional bombing as "punishment", consists of pages of rhetoric reinforced like a bad legal contract, by the use of quotations in small-print footnotes that are really inappropriate, e.g. he quotes President Kennedy: "That son of a bitch [Khrushchev] won't pay any attention to words. He has to see you move." (From Arthur M. Schlesinger, *A Thousand Days*, Houghton Mifflin, 1965, p391.) This is simply not an appropriate argument for using violence for coercion instead of deterrence, because Kennedy did not need to bomb Cuba to resolve the Cuban Missiles Crisis. A naval blockade, and putting nuclear forces on alert, proved to be sufficient deterrence to get the message through Khrushchev's thick skull.

Schelling's recipe of conventional coercive bombing as civilian punishment to induce them to ask the dictators to surrender was tried in WWII and failed; the USSBS found it was counterproductive. Conventional coercive bombing was tried in Vietnam and failed; again, it was counterproductive to have napalmed kids in newspapers. Schelling didn't use mathematics but his advocated war policy was similar to Minimax from game theory: don't risk using overwhelming force, use just enough force to hurt the enemy enough to make them interested in negotiation. That is a recipe for *fake* peace agreements (to take the heat off, while the enemy prepare for another war or invasion). Clausewitz by contrast argues that you should disarm the opponent (entirely different from napalming kids or bombing cities) to get a trustworthy peace deal! *If you can't disarm them, then you shouldn't have a half-baked statemate war that ends in your humiliation (as Vietnam, Iraq, Afghanistan), sending a signal of your weakness to the entire world, but instead you need credible nuclear deterrence to deter the enemy from major provocations like invading allies*. On page 15 of *Arms and Influence* Schelling argues that General Sherman admitted to using "barbarity and violence" during his Union army's march through Georgia in the America Civil War, yet it was military attrition and military fatigue than led to Confederacy surrender, not pressure on civilians! The whole of Schelling's argument is an effort to justify Nazi-style coercive control through violence, the *very thing that really galvanised the free world into defeating them.* The reality is that the only credible nuclear deterrent is tactical nuclear weapons to stop invasions and wars. That is a credible deterrent, because it is not a bluff. It's essential to make this clear now.

It must be emphasised Schelling's call for gradual, minimal-force coercive (limited statemate) **war as punishment** is *the exact opposite* to Kahn's evidence based call for **credible deterrence of war**. Arms races are not new to the cold war, for instance France and Britain were in a naval deterrent arms race between 1840-65, which Britain won by maintaining a 50% superiority until France gave up, due to the economic pressure (see Samuel P. Huntington, "Arms races", in *Public Policy: A Yearbook of the Graduate School of Public Administration,* Harvard University, Volume VIII, 1958, edited by Carl J. Friedrich and Seymour Harris).

Paul Bracken, professor of management and politics at Yale and former RAND Corp consultant and Hudson Institute staff member, *The Second Nuclear Age* (St Martin's Griffin, NY, 2013), pages 60-4, and 231: "**You Don't Have to Fire a Nuclear Weapon to Use it**. This is the single most important lesson of the first nuclear age. Nuclear war didn't occur. But nuclear weapons were used every single day. There were many innovative ways to use the bomb without actually firing

it. Some people get upset when told ... Many have grown up in a world where nuclear weapons have been thoroughly demonized, absent from any discussion of their usefulness ... The bomb was used right from the beginning ... Despite this, many observers at the time missed what was happening. ... Consider a few of their uses. The bomb was used to deter a nuclear attack on the United States. That's clear. More than 7,000 bombs were put in Europe to deter an attack there as well. But not just for deterrence. Nuclear weapons were also used for communication and bargaining. Harry Truman used worldwide bomber exercises to ratchet up risk and to communicate to Moscow ... He used the bomber runs to bargain with the Soviets. 'Okay, go ahead, shoot down our airplanes supplying Berlin ... if you fire on them see what I do next!' If that's not using the bomb, I don't know what is. President Eisenhower ordered the 'Long Tom' atomic cannon to Korea in 1953 when the armistice talks there stalled. Film clips were sent to the newspapers of the Long Tom firing an atomic artillery round [*15 kt Grable, a tactical nuclear weapon test in Nevada, May 25, 1953, during Korean War which finally ended on July, 27 1953*]. ... In the 1980s, new US missiles were installed in Europe, to counter Soviet missiles deployed earlier ... NATO had been foundering in the late 1970s ... Moscow saw a chance to split the alliance even further, using the nuclear issue. Antinuclear emotions were stokes everywhere, as the Soviets tried to drum up bigger street demonstrations and more domestic opposition. ... [p231] The term MAD [Mutual Assured Destruction] was coined by my former colleague Don Brennan of the Hudson Institute, and he meant it as a disparaging description of cold war US strategy. ... Brennan called this thinking 'MAD', which it was. ... As to what current US nuclear strategy toward Russia is, what replaces MAD, no one seems to know or care."



Despite this, McNamara disastrously decided to follow Thomas Schelling's MAD pro-arms control-biased "war as punishment" philosophy (von Neumann's "Minimax" theorem of game theory), in both Vietnam and the broader USA-Russian Cold War, not Herman Kahn's superior deterrent (which was based on deterring the escalations that led to WWI and WWII). See Keith Payne's 2008 *Great American Gamble*. The reality is, Schelling's fake "war as punishment" game theory of war failed in Vietnam, and led to 1970s Russian resurgence in the Cold War, culminating in Reagan's election and Cold War intensification with Star Wars, etc. Parity in the real world (not rule abided "games") *was not and is not stable or safe.* Schelling was awarded the Nobel Peace Prize for it, like 1930s disarmers/appeasers Lord Noel-Baker and Sir Norman Angell, whose propaganda led to disaster! Victory in war is not achieved by analogy to a rule-abided game, but to the *Machiavellian use of overwhelming - not minimal - force to disarm an opponent according to the Lanchester Equations aka Sir William Slim's "the more you use, the fewer you lose" dictum based on battle for Burma, WWII*. Minimising the maximum possible risk and using minimal force (the Minimax theory of gambling and rule abided games) leads to the Vietnam style and the current Ukraine-Russian statemate war of failure through attrition and fatigue, maximising the casualties, destruction, and military cost, and failing to make a decisive breakthrough. There is nothing new about this, as Brigadier-General P. R. C. Groves explains on page 84 of his 1934 book *Behind the Smoke Screen:*

"But the whole conduct of the [First World] War ... bears witness to deadly conservatism. The result in our case was, as Mr Churchill points out in *The World Crisis* that 'In all British offensives, the British casualties were never less than 3 to 2, and often nearly double the corresponding German losses'. Despite the lessons of the South African [Boer] War, the Russo-Japanese war, the Balkan Wars, and the first engagements of the Great War itself ... our Higher Command adhered to the fixed idea of frontal attack, often without adequate artillery preparation, or even adequate supremacy in numbers and seldom with any effort to gain the cardinal advantage of surprise." (This problem is due to "Parkinson's Law" of bureaucracy, and also to Pournelle's "iron law of bureaucracy", etc. Anyone talking any sense gets censored or "no-platformed" by the big bureaucratic "elitist" groupthink blob of incompetent self-serving, self-rewarding establishment snobbery.)

Despite the endless attacks on tactical nuclear weapons by books, articles and TV interviews given by Robert McNamara in the 1980s (particularly in an episode of the 1989 international TV 13-part series, "The Nuclear Age", entitled "The Education of Robert McNamara"), **even in 1988 NATO still relied on tactical nuclear weapons to defend Europe, e.g. an unfortunately named journalist, Henry van Loon, interviewed Supreme Allied Commander General John R. Galvin for the March 1988 *Armed Forces International Journal* (page 50), who stated: "At this moment I can guarantee only that we can defend ourselves for two weeks against an all-out Warsaw Pact attack - then we will have to use nuclear weapons."** (It was as a result of such honesty that McNamara and other arms control propagandarists for pseudo-peace disarmed all dedicated US and UK tactical nuclear bombs and shells in the 1990s, and also coerced Ukraine into surrendering all its nuclear weapons.)

Daily Mail
TUESDAY, JUNE 8, 1982
17p

EXCLUSIVE
McENROE'S STORY
SEE PAGES 28 29

General makes urgent radio appeal to Argentine C-in-C

SURRENDER —OR ELSE

By HARVEY ELLIOTT, Defence Correspondent

THE BRITISH commander in charge of operations to take Port Stanley called up his opposite number on the radio yesterday and pleaded with him to surrender.

Major-General Jeremy Moore made his 11th-hour appeal to Brigadier General Benjamin Menendez at his headquarters in the beleaguered Falklands capital by breaking into an Argentine VHF wavelength.

This was accomplished by a team who speak Spanish and have studied the Argentine communications network. They cracked the wavelength and codes used by the enemy and are now using them to let the Argentines know the hopelessness of their position.

The General made his person-to-person plea through a Marine captain who speaks Spanish.

General Moore, who has twice won the Military Cross, is a deeply religious man and carries a Bible in his combat jacket, reading a page every day.

He has told his unit commanders that if they have to go in for a final assault they must go in fast—and hard.

But he is also determined to avoid loss of life on both sides if at all possible.

The superiority of the British forces is such that General Moore believes the Argentines should be given the chance of surrendering before hundreds of their young conscripts — and perhaps British troops — are slaughtered.

Last bullet

No information was available about the reply given by Brigadier Menendez, but he is regarded as a hardliner, and has already proclaimed that his garrison would fight 'to the last man and the last bullet.'

News of the surrender offer came last night as Whitehall sources disclosed that Marine and Gurkha patrols have killed 12 Argentines a day for the last five days during a series of fights in the marshy no-man's land between enemy bunkers around Stanley and the British positions overlooking the capital.

British patrols are now pushing so close that they are 'eyeball to eyeball' with the main Argentine defences, according to the sources.

Virtually all the troops under General Moore's command are now in position for the battle to regain Port Stanley and last night Michael Nicholson, ITN reporter with the Task Force, said that Marine Commandos have outflanked the Argentines north of

Turn to Page 2, Col. 1

Welcome, Mr President!



Royal welcome at Windsor for President and Mrs Reagan—Turn to Page 3

INSIDE: Fomail 12, Diary 17, TV Guide 20-21, Classified Ads 22, 26-27, Letters, Stars & Strips 24, City 26-27, Casino & Prize Crossword 33

Daily Mail
WEDNESDAY, APRIL 14, 1982
17p

44 Pages with Money Mail

Haig flies out with a clear message from the Prime Minister to Reagan

MAGGIE: IT'S THEM OR US!

By JOHN DICKIE, Diplomatic Correspondent

PEACEMAKER Alexander Haig left London last night to report to President Reagan that the deadlock over the Falklands had hardened — and 'dangerously so'.

Although the American Secretary of State's mediation mission seemed in tatters he is refusing to abandon his role as honest broker. But clearly the prospects of a solution to the crisis are now much dimmer.

Mrs Thatcher told Mr Haig yesterday that the latest Argentine proposals were totally unacceptable.

She left Mr Haig with one salient message for President Reagan. This is a crisis in which only one can survive—it's either Galtieri's junta or us. WE will survive.

Echoing the 'It's Them or Us' theme was the clear signal that the Prime Minister believes it is now America's time to choose, that President Reagan has to come down on one side or the other in the negotiations.

Force

In a 100-minute Downing Street meeting Mrs Thatcher set it out beyond any possibility of misunderstanding that she and her Government were running out of patience with the White House chorus: 'We are equal friends with both sides.'

Her view was reinforced in Washington last night by Senator Daniel Moynihan who said the U.S. should stand by Britain and 'make it clear there is absolutely nothing to mediate between a country using force without provocation and a country resisting that force.'

There was increasing bewilderment in Downing Street yesterday

From ANGUS MACPHERSON in Washington

RUSSIA is supplying Argentina with intelligence on the progress of the British task force, according to U.S. officials.

The data is coming from Soviet satellites and the interception of British radio communications.

U.S. intelligence sources say there are about five Russian warships now in the South Atlantic. It is believed that some of them will shadow the British fleet when it passes Ascension Island.

The U.S. is keeping watch with its own satellites and occasional flights by the SR-71 'Blackbird' spy plane over the area.

mination'. On his return to London following ten hours with Argentina's President Galtieri and his junta, Mr Haig claimed he had 'some specific ideas' and hoped to find common ground acceptable to both sides.

Then after another 11 hours with Mrs Thatcher Mr Haig was hauled over by new demands received by telephone from Argentina's Foreign Minister Costa Mendez.



Marines may be held as PoWs

From TED OLIVER in Buenos Aires

THE 28 British Marines a 13 civilians in Argentin hands may be held as prison ers of war, it was revealed Buenos Aires last night.

Six of the Marines, who hid on the Falkland Islands before surrendering, are being held as military camp in the port Comodoro Rivadavia, 1,800 mil from the Argentine capital.

The larger party, captured duri the battle of South Georgia, regrett with the civilians, have been take from South Georgia in an Argenti naval vessel.

Hostilities

The group, which includes Le Buxton's daughter Cindy, who w filming on South Georgia, will n be taken to the camp in Comodo but it is not known when they d due to arrive.

Argentine sources refused to precise with details of their securi but a Foreign Ministry spokesm in Buenos Aires said: 'If hostili break out in the meantime, all them might be held as prisone of war.'

He said that the plan was, if th

8 June 1982 military "peaceful diplomacy" 14 April 1982 American diplomacy failed.



Daily Mail 17p

TV MAIL TODAY

Premier's warning as Task Force is poised to invade

REAGAN MOVES TO COOL DOWN BRITAIN

BREZHNEV CALLS IN OUR ENVOY WITH WARNING

DE CUELLAR SAYS THE NEXT 36 HOURS WILL TELL

WE'RE READY TO FIGHT

I should not be doing my duty if I did not warn you in the clearest terms that a peace settlement may prove to be impossible

Mrs Thatcher : 'Simplest and clearest terms'

MRS THATCHER last night braced the nation for war to recover the Falkland Islands as the diplomatic efforts to solve the crisis reached a make-or-break stage.

The Prime Minister told a Scottish Tory rally: 'I should not be doing my duty if I did not warn you in the simplest and clearest terms that . . . a negotiated settlement may prove to be unattainable.'

By GORDON GREIG and BARNEY ELLIOTT

She was speaking in the knowledge that the Task Force commander Sandy Woodward has now reported that he has enough ships, men and material assembled to take the islands without unacceptable casualties.

The Cabinet has been told that it is needed in the order from Whitehall — and the right weather.

Powerful

As Mrs Thatcher was telling the Tory faithful that 'we are gathered tonight in the shadow of great events', there were crucial developments around the world:

In Washington, it became clear that a powerful faction — among President Reagan's aides is trying to shake Mrs Thatcher's nerve by leaking reports that the U.S. is threatening to withdraw its support if British military action goes too far.

In Moscow, the Kremlin told the British Ambassador that the exclusion zone round the Falklands was 'universal'.

At the United Nations, Secretary General Javier Perez de Cuellar said that he expected 'final answers from both sides in the next 36 hours' to the proposals for a settlement.

Mrs Thatcher, speaking at Perth, repeated the phrase she had used to the Commons: 'The Government wants a peaceful settlement, but we totally reject a peaceful sell-out.' To achieve that settlement, 'we will go on doing all we humanly can.'

But if the diplomatic efforts failed, 'then we should have to turn to the only other course left open to us and that is why the Government has done nothing in its attempts to find a diplomatic solution which forfeiture any military option now or of any military option for the future.'

And the statement: 'Nothing is being held up. We are not negotiating, nor should we be.' The Argentine might prefer

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INSIDE: Femail 12, Junior Letters, Stars & Strips 26, Swingeing 29, Holiday Mail 38, Prize Plus Crossword 22, Casino 36, City 36,37

15 May 1982



Daily Mail 17p

ALL THE HOLIDAY SPORT PAGES 24-32

Argentina pulls back its navy and discusses a South American solution to the crisis

HAIG'S LATIN PEACE PLAN

By JOHN DICKIE and GORDON GREIG

ALEXANDER HAIG was on his way back to London with the outline of a Falklands peace formula last night as the Argentine Navy backed off in the face of Britain's blockade.

The U.S. Secretary of State was understood to have in mind an 'international' peace-keeping force drawn largely from South America to replace the Argentine troops on the Falkland Islands. Whether Mrs Thatcher would accept such a plan was another matter.

Mr Haig will be met by a Prime Minister who seems to have won her first naval confrontation with Argentina without a torpedo being fired.

In the last hours of the countdown to the British deadline of 4 a.m. today for Argentine warships to get out of the 200-mile-radius exclusion zone round the Falklands or be sunk, and Buenos Aires military junta said only a frigate and a destroyer left at sea in the area, those ships were expected to be back in harbour with the rest of the Argentine fleet by daylight and Argentina the first of Washington and their whole world out of personal challenge the British blockade.

But there were fears among some that this was not the end of the crisis. Mr Haig is to arrive in London at the height of the Parliamentary debate on the Falklands. The Argentine Navy's decision to withdraw its warships to their bases is thought to have been taken after the Argentine Air Force refused to provide cover for the fleet.

Meanwhile a triumph for Britain

Victory at North Pole

Victory toast for Charles Burton from wife Thelma and mother, Mrs Molly Burton, in Sussex

Picture: JAMES GRAY

POLAR adventurers Sir Ranulph Fiennes and Dr Charles Burton were fighting on across the ice cap today after becoming the first explorers to cross both Poles in one trip around the world.

The two Englishmen made their planned pickup to the North Pole at 2.15 a.m. yesterday. They reached their destination — a point where all directions are south — after a 52-day journey from the South Pole.

Dr Burton also sent a message to his wife Thelma, at their home in Sussex, saying he would be journey north at 30,000 mph to Lake Lewis.

Mrs Burton, a Londoner who married the bearded explorer in Sydney during the expedition, said: 'It is something I shall treasure for ever.'

Last night, after their supply drops brought to land and food, the team set off to begin the journey to meet the Transglobe Expedition's ship, Benjamin Bowring at Point

Fear for Marines

THERE were fears last night that 93 Marines and 13 paratroops captured last week may have been in the engine passed.

The Argentine junta said that now were being transferred from the South Georgia islands to the mainland by boat.

Fears would be only if there were withdrawal of the men were refusing to give any assurance that they would not be harmed.

Turn to Page 2, Col. 1

12 April 1982



Daily Mail 17p

Casino Encore Page 21

Midnight: No. 10 is sceptical of peace plan

JUNTA DEAL IS 'UNACCEPTABLE

By JOHN DICKIE and GORDON GREIG

MRS THATCHER was facing the most agonising question of her political life early today — is it to be peace or war over the Falklands?

She had been handed a plan which gives Argentina a continuing foothold on the islands.

The Prime Minister summoned her Inner Cabinet to Downing Street to discuss Mr Alexander Haig's package which had been flashed to London from Buenos Aires.

There was a hoard-orchestrated mood of optimism in Argentina purporting to show that the junta's President Galtieri had made concessions.

But the package was seen in Downing Street as being full of traps for a Prime Minister pledged to get total international withdrawal of Argentine forces and the restoration of British administration.

It was from the start the plan was written off by higher-placed sources as totally unacceptable in its present form.

Mrs Thatcher received details of the plan in urgent telegrams from Mr Haig at 9 last night. At 10 p.m. she summoned the Ministers who have taken all the decisions in the past fourteen days of the crisis—Foreign Secretary Francis Pym, Defence Secretary John Nott and Home Secretary Willie Whitelaw — plus the Chief of the Defence Staff Admiral Sir

Showing the strain . . . Mr Haig, right, at the start of yesterday's talks

Terence Lewin and Tory party chairman Cecil Parkinson.

From Mr Pym she wanted to know the latest disposition of the Navy task force now within days of reaching the Falklands area. Mr Parkinson had to answer the big question—how would Tory MPs react to the Haig plan?

As the meeting continued, a No. 10 statement was issued: 'It said the complex and difficult contents of Mr Haig's message did not at first sight meet the requirements strongly expressed by Parliament, particularly on the need to regard as paramount the wishes of the islanders. The meeting broke up at midnight.

Early today Argentina called for a

Turn to Page 2, Col. 1

Siege drama after gold man is sh

A MAN with a gun gave himself up to police last night after a five-hour siege on a housing estate.

Earlier, a man and a woman had driven up to the home of a retired businessman, supposedly in answer to an advertisement offering a quantity of gold for sale.

By JON STAIN and GARETH WOODGATES

Minutes later, Mr Jones lay dead from a pistol shot.

His wife knocked to the floor with a gun butt received a head wound.

Witnesses said that after hearing a shot they saw a man, carrying a black bag, come out of the house and drive away.

Mrs Gloria Bevan, who lives opposite the dispute, said that she heard screams from the gate. At first I thought it was the children of dear friends.

Then the Jones's daughter, Sharon, 16, came out, hysterical.

She had come to her mum and found all over her face. I got some of the blood on me.'

The neighbour said: 'I was about to go out when I saw Sharon. She was shouting at once. Later, two more arrived, a man was found unconscious.

A woman was assisting police with inquiries.

A police cordon began at Southampton's Hartsfield roundabout, where it covers 7 acres. Police, some armed, surrounded a ground-floor flat with a shop inside.

Detective Superintendent Brian Owens, senior officer in charge of South-East Hampshire, issued later the

20 April 1982

DAILY MAIL 6 APRIL 1982 PAGE 1 (FRONT PAGE):

By GORDON GREIG, Political Editor

ON the day Britain's 1982 battle fleet sailed out to sea, Margaret Thatcher staked her s h a k y Government's survival on getting the Falkland Islands back, whether by diplomacy or force.

She fought to steady the nerves of a Cabinet rocked by the resignations of the Foreign Secretary, Lord Carrington, and two of his Ministers. They took the blame for what Lord Carrington described as the 'humiliating affront' of the Argentines seizing the islands.

Asked on television last night whether she would herself resign if the Falklands operation failed, Mrs Thatcher declared in magisterial tones :

"I am not talking about failure. I'm talking about my supreme confidence in the British fleet, superlative ships, excellent equipment the most highly-trained group of men, the most honourable and brave members of Her Majesty's Services . . .

Failure ? Do you remember what Queen Victoria once said ? 'Failure —the possibilities do not exist'. That is the way we must look at t

Demand that shocked Left-Wing

Don't fight says Benn

By ROBERT PORTER, Political Correspondent

ANTHONY WEDGWOOD BENN stormed out of a Left-Wing Tribune meeting last night after angry colleagues b o o e d and jeered his claim that Britain should take no military action to free

relations in South America, he said.

In any event, the Americans would not stand by and see the British cause shock waves through the delicate political and military balance in South America.

Several members of the Shadow Cabinet were at the Tribune gathering before leav-

the Falklands.

Amid a noisy debate Mr Benn infuriated other Left Wingers by comparing the Falklands-bound task force with Britain's ill-fated Suez expedition in 1956.

Colleagues denounced the comparison and asked Mr Benn to remember that it was British paratroops who invaded Egypt during the Suez crisis. This time, it was Argentine marines who were invading the peaceful Falkland islanders.

Mr Benn claimed there was nothing Britain could or should do militarily. Any serious attack against Argentina would only de-stabilise

ing to conduct their own meeting. They joined in the jeers and boos directed at Mr Benn, who sprang to his feet soon afterwards and left.

Some of Mr Benn's supporters claimed he left only to attend another meeting.

● Labour leader Michael Foot last night defended Labour's support of British military intervention. He was heckled but also won thunderous applause at a public meeting at Wandsworth

Dr David Owen said after a meeting of SDP MPs last night that there would be no 'weakening or wobbling' in their support for the Government's action.

We must use all our professionalism, all our flair and every single bit of native cunning, every single bit of professionalism and all our equipment.

We must go out calmly, quietly, to succeed . . .

We have to recover those islands. We have to recover them, for the people on them are British, of British stock and they still owe allegiance to the Crown and want to be British. We have to do what is necessary to recover those islands.

Mrs Thatcher appointed Francis Pym as Foreign Secretary. She tried to persuade Lord Carrington — 'a sturdy and bonny fighter for Britain'—to stay,

Turn to Page Nine

INSIDE: Mail Diary 19, TV Guide 22, Femail 25, Prize Crossword 30, City 32, 33, Classif

Daily Mail

17p

EUROVISION CONTEST SPECIAL

Jelly-bean Reagan ducks
Pym as talks get nowhere

WE'RE ON OUR OWN

From JOHN DICKIE in Washington

FOREIGN SECRETARY Francis Pym is due back in London today from Washington. Empty-handed.

He will report to Mrs Thatcher that there is practically no hope at this point of a diplomatic solution.

It is almost inevitable that his advice will be : If we want to solve the Falklands crisis we will have to do it ourselves.

This means that an assault on South Georgia could be imminent, as a first step towards retaking the Falkland Islands.

(Ted Oliver reports from Buenos Aires : Some Argentine sources said that President Galtieri was prepared to sacrifice South Georgia with just enough of a fight to justify his warmongering speeches in the hope that some British pride restored, Mrs Thatcher would then go to the UN. That, however, could be a risky strategy as Britain could use South Georgia as a base to launch an attack on the Falklands.)

Difficulties

U.S. Secretary of State Alexander Haig appealed to Mr Pym for more restraint, more patience, more time. But the Americans had nothing to offer towards breaking the deadlock and satisfying Britain's essential demand : Get the Argentine invaders off the Islands.

President Reagan did not intervene as had been expected. Mr Pym waited in vain for a call to the White House. Instead the jelly-bean-loving President left the talking to Mr Haig. Asked if he planned to see the British Foreign Secretary, Reagan ducked the question, with the words : It's a nice day. We'll talk about that later.'

Mr Pym, after his long talks with Mr Haig, was in a mood bordering on despair. 'I think in view of the position taken by Argentina that their aggression should be rewarded it is hardly surprising that it should be difficult to reconcile the British view with the Argentine view,' he said. 'Serious difficulties remain. I can't report any particular progress.'

He did not conceal his anxiety about what lay ahead. 'I must not shrink from the possibility of the use of force. If all else fails it might come to that. It is no service to the cause of peace for us to maintain otherwise.'

And so, with the British task force already at 'defence stations'—the stage down from full Action Stations—with advance units already reconnoitering

Turn to Page 2, Col. 1



Pym in Washington . . . a mood of near-despair

Britons told: Get out

By ROBERT PORTER in London and AMIT ROY in Buenos Aires

THE GOVERNMENT last night issued its gravest warning yet to British families still in Argentina to get out while they can.

The warning came after a threat from Argentine terrorists to kill British families if the Falklands crisis turns into an open war.

Government warnings were transmitted several times last night on the BBC World Service and will be repeated over the weekend. And a special message is going out tonight to the Falklands telling islanders that cash help is available if they want to leave before any fighting should begin.

With murder and mob violence everyday events in Argentina, British Ministers fear that British lives are gravely at risk.

At present the Argentine Junta is not being blamed for the threats. But it is felt that British lives cannot be safeguarded in an atmosphere of mounting war hysteria.

The threats came in letters sent by a group of Argentine terrorists in Montevideo calling themselves Gadlu —the Armed Group for the Defence of the Malvinas Islands.

The Government message advises

Turn to Page Two Col. 5

£51,000 for couple beaten by police

A middle-aged Jamaican couple who were brutally beaten up in a police raid on their home won £51,000 damages yesterday.

David and Lucille White were subjected to a 'catalogue of violence and inhuman treatment,' said Mr Justice Mars-Jones.

Truncheon

Choking

Turn to Page 5, Col. 1

INSIDE: Weather 2, Femail 12, Junior Letters, Stars & Strips 25, Gardening 27-28, Prize Crossword 28, Holidays 30, 32, City 34-35, Casino Encore 39, Sport 39-44

24 June 1982: Reagan refused to assist UK!

Daily Mail

17p

NAPALM: THE PROO

Centre Pages

'Liberty, justice and democracy is what I seek—that is not humiliation'



—Mrs Thatcher, last night

TREACHERY TO YIELD NOW

By ROBERT PORTER and ALAN YOUNG

MRS THATCHER made it absolutely clear last night that Argentina will play no part in the future of the Falklands. To give anything to an aggressor she said, 'would be treachery and betrayal of our own people.'

But she stressed : 'I am not seeking to humiliate anyone. I am just trying to repossess islands which are British sovereign territory. That is not humiliation. That is liberty· justice and democracy.'

Asked about appeals for magnanimity in victory, she retorted : 'It is not a word I use in connection with the battle for the Falklands. Sometimes I think people are using it to say "All right, hand something to the Argentines".

'Under these circumstances to an invader, and an aggressor, and a military dictator, that would not be magnanimity. It would be treachery or betrayal of our own people—we could not betray our own people.'

What she did see was protection from Argentina by a multi-national garrison including the U.S. 'This must not happen again,' she said.

The Prime Minister spelled it out to Britain and the world in major television interviews with both the BBC and ITN.

'I do not believe for one moment that after what people have experienced they would see the Argentine government as playing any part in their future,' she said firmly. 'Now that they have experienced what it is like to live with the Argentines on the Islands I think that their hostility to the Argentines would be even greater.'

Guns fire— on Moody Brook

AX HASTINGS, in a British position two miles from Port Stanley

M the command post from I am telephoning this tch, I can see our artillery ty firing on Moody Brook, the r Royal Marine base just of Stanley, where the Argens now have a headquarters.

night, guns and mortars were gged 40 miles forward across East d in a brilliant operation. We ld the vital mountains totally ing Port Stanley positions.

lifted on to the British landing the first wave of helicopters, and vast mass of men and weapons, r-raising ride hugging the con-

Steadfast

Mrs Thatcher gave the Argentines a last chance to withdraw before what she admitted could be a prolonged and bloody struggle for Port Stanley. She said: 'If they say "Look, we are going to withdraw within the next ten to 14 days," then there would be no need for a battle.' She added : 'I would be delighted . . . it would save so many young lives.'



3 June 1982: UK had to defeat dictatorship alone

6 April 1982

Daily Mail
TUESDAY, APRIL 6, 1982
17p

Super Casino
Page 30



As Pym goes to F.O. the Premier says: We'll recover those islands

MAGGIE STAKES ALL ON VICTORY

By GORDON GREIG, Political Editor

ON the day Britain's 1982 battle fleet sailed out to sea, Margaret Thatcher staked her shaky Government's survival on getting the Falkland Islands back, whether by diplomacy or force.

She fought to steady the nerves of a Cabinet rocked by the resignations of the Foreign Secretary, Lord Carrington, and two of his Ministers. They took the blame for what Lord Carrington described as the 'humiliating



Demand that shocked Left-Wing

Don't fight

NOP

4 out of 5 want them back

By Political Editor

MRS THATCHER had an overwhelming majority of the country behind her in the Government's attempt to restore the Falkland Islands to British rule.

An NOP survey today shows that 69 per cent. of those questioned believed it to be 'very important' and 14 per cent. 'fairly important' that we regain the Falklands.

More than half said that once we have got them back we should hold on to them.

The poll should also stiffen the military resolve of the Prime Minister and her new Foreign Secretary Francis Pym: Offered a straight choice between using force or relying on diplomatic pressure to regain the Falklands, 53 per cent. favoured force and 46 per cent. diplomacy.

Ominously for the Government, 17 per cent. of the Tory voters questioned say they might switch their support

says Benn

By ROBERT PORTER, Political Correspondent

ANTHONY WEDGWOOD BENN stormed out of a Left-Wing Tribune meeting last night after angry colleagues booed and jeered his claim that Britain should take no military action to free the Falklands.

Amid a noisy debate Mr Benn infuriated other Left Wingers by comparing the Falklands-bound task force with Britain's ill-fated Suez expedition in 1956.

Colleagues denounced the comparison and asked Mr Benn to remember that it was British paratroops who invaded Egypt during the Suez crisis. This time, it was Argentine marines who were invading the peaceful Falkland islanders.

Mr Benn claimed there was nothing Britain could or should do militarily. Any serious attack against Argentina would only de-stabilise relations in South America, he said.

In any event, the Americans would not stand by and see the British cause shock waves through the delicate political and military balance in South America.

Several members of the Shadow Cabinet were at the Tribune gathering before leaving to conduct their own meeting. They joined in the jeers and boos directed at Mr Benn, who sprang to his feet soon afterwards and left.

Some of Mr Benn's supporters claimed he left only to attend another meeting.

● Labour leader Michael Foot last night defended Labour's support of British military intervention. He was heckled but also won thunderous applause at a public meeting at Wandsworth.

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affront of the Argentines seizing the islands.

Asked on television last night whether she would herself resign if the Falklands operation failed, Mrs Thatcher declared in magisterial tones :

"I am not talking about failure. I'm talking about my supreme confidence in the British fleet, superlative ships, excellent equipment the most highly-trained group of men, the most honourable and brave members of Her Majesty's Services . . .

Failure? Do you remember what Queen Victoria once said? 'Failure —the possibilities do not exist'. That is the way we must look at t.

We must use all our professionalism, all our flair and every single bit of native cunning, every single bit of professionalism and all our equipment.

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Mrs Thatcher appointed Francis Pym as Foreign Secretary. She tried to persuade Lord Carrington —'a sturdy and bonny fighter for Britain'—to stay,

Turn to Page Nine



Out : Carrington yesterday

away from their party if Britain failed to end the Argentinian occupation.

Worsened

A total of 80 per cent. blame Mrs Thatcher's administration for what happened : 58 per cent. said it was 'a lot' to blame and 22 per cent. 'a little'.

And 50 per cent. reckon that as a result, Britain's standing in the world is worse.

As for personal culpability, it looks as though Lord Carrington has correctly judged the public mood by resigning. There were 41 per cent. who thought he was most to blame for the fiasco.

But 39 per cent. also blamed Defence Minister John Nott and 36 per cent. Mrs Thatcher. And to another question 45 per cent. thought that Lord Carrington and Mr Nott should both have resigned or been sacked.

Only 36 per cent. thought Britain should negotiate a peaceful transfer of the Falklands to Argentina at some future date — and 56 per cent. wanted them to be held indefinitely once we get them back.

● NOP interviewed a representative quota sample of 942 people in 47 constituencies across Britain on April 5, 1982.

INSIDE: Mail Diary 19, TV Guide 22, Femail 25, Prize Crossword 30, City 32, 33, Classified Adverts 32, 34, Letters, Stars & Strips 35, Sport 36-40

ON VICTO

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She fought to steady the nerves of a Cabinet rocked by the resignations of the Foreign Secretary, Lord Carrington, and two of his Ministers. They took the blame for what Lord Carrington described as the 'humiliating affront' of the Argentines seizing the islands.

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Demand that shocked Left-Wing

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relations in South America, he said.

In any event, the Americans would not stand by and see the British cause shock waves through the delicate political and military balance in South America.

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the Falklands.

Amid a noisy debate Mr Benn infuriated other Left Wingers by comparing the Falklands-bound task force with Britain's ill-fated Suez expedition in 1956.

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Turn to Page Nine

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INSIDE: Mail Diary 19 TV Guide 22 Femail 25 Priz

ABOVE: In 1982, at the height of the 1st Russian-West Cold War, the UK Falkland Islands suffered an illegal invasion by the Argentine dictatorship. The USA Secretary of State refused to back the UK, and tried to offer to mediate a fake "peace deal" in which South American "peacekeepers" would mediate to stop the shooting. However, the UK decided to kick the invaders out, despite having to launch a substantial war on land, at sea and in the air, lasting 74 days against the invaders, leading to the loss of 255 British military personnel, 777 injured, some very seriously, and the loss of 5 ships. Because of a shortage of military equipment, a civilian cruise liner, the QE2, was requisitioned to ship troops to the islands, and merchant cargo ships such as Atlantic Conveyor were requisitioned as improvised aircraft carriers for military helicopters (Atlantic Conveyor was sunk by two Exocet missiles). The Falklands War is important because it shows how a country prepared for a nuclear war against one state may be invaded in a conventional surprise attack by another, and have to improvise weapons using civilian ships. This indicates that conventional thinking about the "military resources" of a state is false in an emergency attack. Countries can and do improvise weapons to protect their citizens in war. Simply counting up a country's pre-war "military resources" and using it to argue about war threats is incorrect. Additionally, we need a credible deterrent against invasions, if we are to have security and peace against the aggressive actions of dictators. On 5 April 1982, the Daily Mail called for Lord Carrington, the British Foreign Secretary, to be fired by Maggie Thatcher, and he resigned that day to be replaced by another crazy fool, Francis Pym (who was sacked the next year for deploring successful elections on TV during the 1983 general election campaign!). In their editorial the next day (6 April 1982), the Daily Mail stated:

"Lord Carrington ... had to go. And he knew it. ... let there be no myth ... Lord Carrington and ... two other Ministers from the Foreign Office ... are not scapegoats. It is through the culpable negligence of the over-mighty Department of State ... that Britain was utterly unprepared to deter the Argentines from invading the Falkland Islands. ... For weeks, the languid FO dismissed the gathering storm as if it were a tiresome and distant passing squall. There is only one place on the globe in 1982 where Britain risked blundering into war. ... Lord Carrington preferred to play the world statesman than bother about this ... He was above sending gunboats (or nuclear-powered hunter-killer submarines, the modern and devastatingly effective equivalent). The FO would cope. Diplomacy would do the trick. The past 72 hours tell a different story. ... 1,800 Britons are under foreign domination. Britain is virtually at war. The greater part of the naval strength of this country is being staked on one perilous throw. The maimed government ... is fighting for its political life."

The Falklands War also demonstrated the failure of NATO to protect a member from an attack and invasion. The Daily Mail's front page on 24 April 1982:

"Jelly-bean Reagan ducks Pym as talks get nowhere. WE'RE ON OUR OWN. From John Dickie in Washington. Foreign Secretary Francis Pym is due back in London today from Washington. Empty-handed. He will report to Mrs Thatcher that there is practically no hope at this point of a diplomatic solution. ... US Secretary of State Alexander Haig appealed to Mr Pym for more restraint, more patience, more time. But the Americans had nothing to offer towards ... satisfying Britain's essential demand: Get the Argentine invaders off the islands. President Reagan did not intervene ... Mr Pym waited in vain for a call to the White House. Instead, the jelly-bean-loving President left the talking to Mr Haig. Asked if he planned to see the British Foreign Secretary, Reagan ducked the question with the words: 'It's a nice day...' Mr Pym, after his long talks with Mr Haig, was in a mood bordering on despair. ... He did not conceal his anxiety ... 'I must not shrink from the possibility of the use of force. If all else fails, it might come to that. It is no service to the cause of peace for us to maintain otherwise'."

This illustrates the fact Britain cannot rely on America or NATO today any more than it could in 1982, 1914 or 1939. We need CREDIBLE independent deterrents. Lord Carrington, whose failure to deter the Falklands War led to his resignation as Foreign Secretary on 5 April 1982, ironically had earlier stated in *The Times* of October 28, 1981: "It is wrong to claim that there is no choice between being 'red or dead'. There is in fact a third choice. It is one which Europe has pursued successfully for half a lifetime - to prevent war and remain free." This proves that fine words are no substitute for taking action to deter provocations and wars.



ceremony be completed and the Argentines demonstrate their victory in the most traditional fashion.

Daily Mail 6 April 1982, p2

We all thought we would be killed in half an hour, says major

Bravery of Marines outnumbered 10 to 1

THE full extent of the heroism of 79 Royal Marines as they battled, outnumbered by more than 10 to one, for well over three hours in the battle of the Falkland Islands was revealed by the Governor yesterday.

In a graphic account Mr Rex Hunt said that the Marines fired 6,450 rounds of rifle ammunition, four 84 millimetre rockets, and two white phosphorus grenades against the invaders.

Without losing a man, without even a scratch they believe they killed five Argentines, wounded 17 and probably killed a further ten soldiers trapped inside an armoured personnel carrier hit by anti-tank weapons.

Swarmed

But in the end sheer weight of numbers and a shortage of ammunition proved too much and they were forced to lay down their weapons on the orders of the Governor, who feared civilian casualties.

Mr Hunt was speaking after he and the 79 Marines were flown back to England. Their VC-10 was met at RAF Brize Norton in Oxfordshire by Foreign Minister Richard Luce—who later resigned—and the Commandant General of the Royal Marines, Lieutenant General Sir Stewart Pringle, still on crutches as a result of his car bomb injuries.

Also on the plane were Mr Hunt's wife Mavis, and 17-year-old son Anthony. They were greeted by the Hunts' 20-year-old daughter Diana, who wept with her mother.

The 113 passengers included three Falklands girls who have married Marines on duty there, embassy staff from Buenos Aires and their families

Mr Hunt has flown to London with the two Marine maors in charge of the operation. One of them, Major Mike Norman, said he believed he was going to die within half an hour when the Argentinians swarmed ashore.

'When bullets are being fired at you it is of course frightening,' he said. 'But we all came to terms with the fact that within the next half hour we were going to die. Once you have come to terms with that you just get on with your job.'

The Governor said they had been surprised by the invasion route. The Argentine troops had landed at a

By HARVEY ELLIOTT and JOHN DICKIE

different beach from the one which had been defended and were able to bring ashore their amphibious vehicles without opposition.

But as they roared along the road a section of Royal Marines opened up with an anti-tank gun. One rocket slammed into the tracks of one of the trucks and another into the passenger area, said Mr Hunt.

The Marines waited to pick off any survivors, but no one got out. So it is possible that the ten men inside were killed.

The Marines had by now run out of supplies of anti-tank rockets and were ordered to pull back to Government House.

As they did so Argentine soldiers were surrounding the area and, from high vantage points, shooting down on to the defenders. The Marines fired back, killing two of the attackers and leaving three injured goaning outside the wall of Government House less than 20 yards away. Temporarily, at least, the invaders were thrown back.

Then a search of the maids' quarters, led by Major Gary Noott, discovered three Argentines hiding inside the buliding. They immediately surrendered and were made prisoners of war.

But the one-sided battle was inevitably going to be lost. Heavy armoured vehicles were rapidly approaching and Mr Hunt, rather than have Government House blown apart, possibly killing everyone inside, decided to negotiate.

Later an Argentine admiral arrived at Government House. 'He was very courteous and polite,' said Mr Hunt. He tried to shake my hand but I said I would not shake hands with someone who was invading British territory. He said it was not British territory.

'He said they had overwhelmingly superior forces and he did not wish to inflict civilian or military casualties.

'I said I had no alternative but to agree. We handed back the three prisoners

Mr Hunt criticised the Daily Ma for suggesting that the islands ha given up without a fight, with hardl a shot being fired. He said he w looking for an apology over th statement.

[Last night Mr David English Editor of the Daily Mail, said : 'W are sorry if the phrase "Wit hardly a shot fired" caused offen to Mr Hunt. Certainly no slur w intended against him, th islanders or the Royal Marines.

'It was used in a metaphoric sense to describe the Argenti takeover of a British colony in few hours—because the Gover ment had made no real provisio to defend it. It is a phrase critic of the politicians, not of the sm detachment of Royal Marines le to fight gallantly against ove whelming odds.'

Crying

Mr Hunt said that he had asked for reinforcements fr Britain for the islands at any ti in the six weeks leading up to invasion.

He said : 'Until the very moment I thought there would b settlement by diplomatic mean did not think (General Leopol Galtieri would do such a stu thing.'

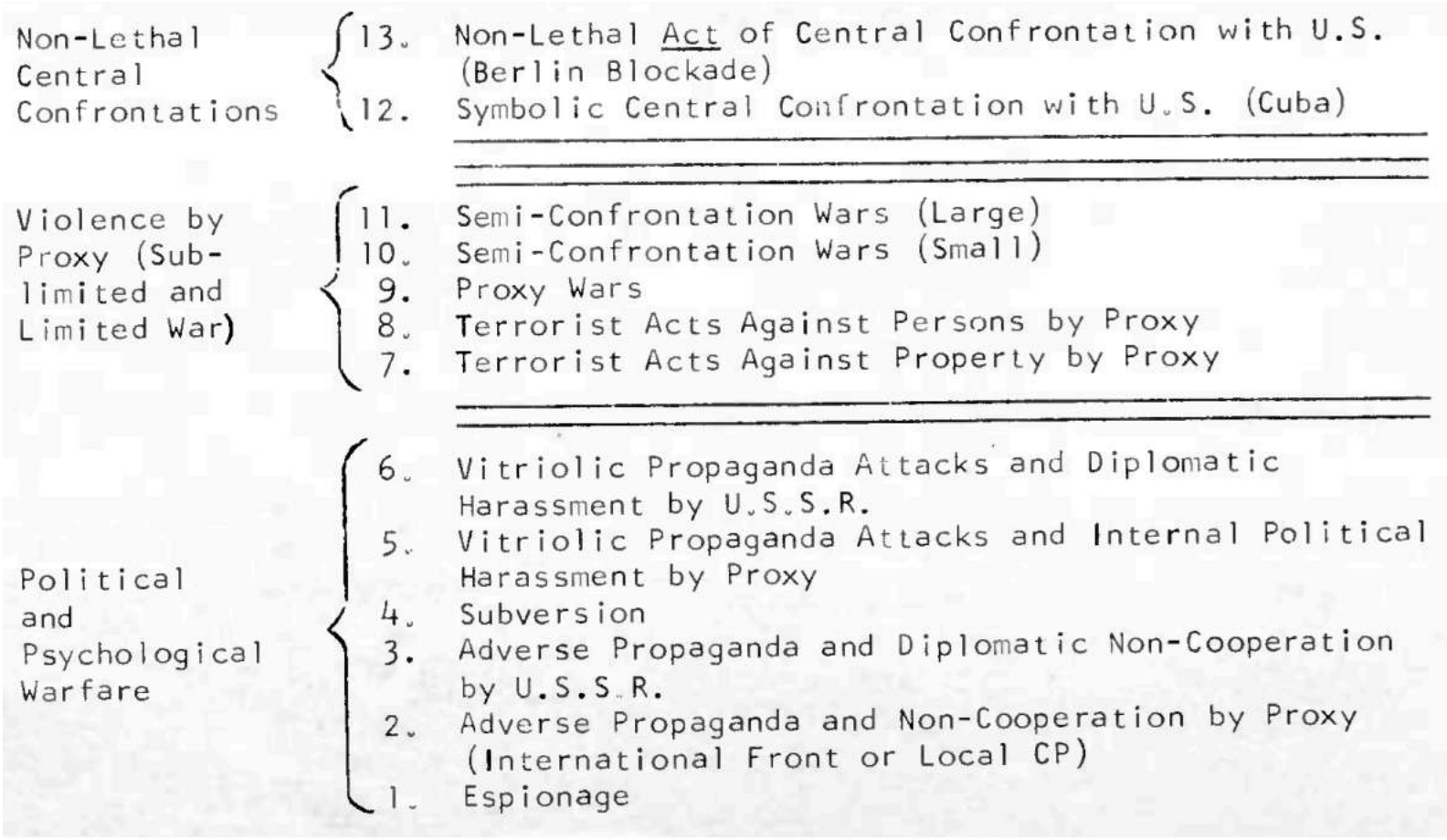
He added : 'I feel we have let islanders down. They felt let d and, when we left on Friday, t were crying. They felt we going for good.

'I am still Governor and I hop finish my tour of duty which e next year. I am not resigning Governor of the Falklands.'

"I challenge anybody to give us one instance in the world's history where the defenselessness of any nation saved it from being attacked by an aggressor determined to do so." - Sir John Boyd, *The Guardian*, October 1, 1981.

"I could see where you could have the exchange of tactical weapons against troops in the field without it bringing either one of the major powers to pushing the button." - President Ronald Reagan, *The Times*, October 21, 1981.

"It is the Soviet Union that appears to be building forces for a 'protracted' conflict (the doctrine of *Zatyazhnaya Voyna*). ... for deterrence to continue to be successful in the future, we must take steps to offset the Soviet military buildup. If we do not modernize our arsenal now, as the Soviets have been doing for more than 20 years, we will, within a few years, no longer have the ability to retaliate. The Soviet Union would then be in a position to threaten or actually to attack us in



Russian Cold War escalation ladder: Herman Kahn, "A Paradigm for the 1965-1975 Strategic Debate", Hudson Instite report HI-202-FR, page 154, AD0436770.

the knowledge that we would be incapable of responding. We have seen in Poland, in Afghanistan, in Eastern Europe, and elsewhere, that the Soviet Union does not hesitate to take advantage of a weaker adversary. We cannot allow the Soviet Union to think it could begin a nuclear war with us and win. This is not idle speculation. The Soviet Union has engaged in a frenzied military buildup, in spite of their economic difficulties. They have continued to build greater numbers of nuclear weapons ... They now have over 5000 nuclear warheads on ICBMs compared to about 2000 only five years ago. The have modified the design ... so that many of their land-based missiles are now more accurate, more survivable, and more powerful than our own. They have developed a refiring capability ... They have elaborate plans for civil defence ... whatever they claim their intentions to be, the fact remains that they are designing their weapons in such a way and in sufficient numbers to indicate to us that they think they could begin, and win, a nuclear war." - U.S. Defense Secretary Caspar Weinberger, *The Times*, August 26, 1982.

"We believe that to be seen to be prepared at home [for nuclear war, i.e. *Protect and Survive* civil defence plans], as well as capable of military deterrence abd defence, will make war less likely." - UK Home Secretary William Whitelaw, *The Times*, August 8, 1980. "A civil defence shield not only complements a strong offensive of missiles, submarines, aircraft and soldiers, but above all provides us with a strong deterrent to aggression. The most decisive factor in war is morale, not only on the battlefield, but on the home front. ... Preparedness today means peace tomorrow." - General Sir Walter Walker, *The Times*, August 20, 1980.

Winston Churchill, House of Commons, 28 November 1934: "To urge the preparation of defence is not to assert the imminence of war. On the contrary, if war were imminent preparations for defence would be too late. I do not believe that war is imminent or that war is inevitable, but it seems very difficult to resist the conclusion that, if we do not begin forthwith to put ourselves in a position of security, it will soon be beyond our power to do so. What is the great new fact which has broken in upon us during the last 18 months? Germany is rearming. ... That mighty Power is now equipping itself once again, 70,000,000 of people, with the technical apparatus of modern war, and at the same time is instilling into the hearts of its youth and manhood the most extreme patriotic nationalist and militarist conceptions. ... The German munition factories are working practically under war conditions, and war material is flowing out from them, and has been for the last 12 months certainly, in an ever broadening flow. Much of this is undoubtedly in violation of the treaties which were signed. Germany is rearming on land; she is rearming also to some extent at sea; but what concerns us most of all is the rearmament of Germany in the air. ... I think it would be a great mistake to neglect the scientific side of defence against aircraft attack—of purely defensive action against aircraft attack. ... We all speak under the uncertainty of the future which has so often baffled human foresight, but I believe that if we maintain at all times in the future an air power sufficient to enable us to inflict as much damage upon the most probable assailant, upon the most likely potential aggressor, as he can inflict upon us, we may shield our people effectually in our own time from all those horrors which I have ventured to describe. If that be so, what are £50,000,000 or a £100,000,000 raised by tax or by loan compared with an immunity like that? Never has so fertile and so blessed an insurance been procurable so cheaply. ... For all these reasons, it seems to me, and I submit to the House, that we ought to decide now to maintain, at all costs, in the next 10 years an Air Force substantially stronger than that of Germany, and that it should be considered a high crime against the State, whatever Government is in power, if that force is allowed to fall substantially below, even for a month, the potential force which may be possessed by that country abroad. That is the object with which I have put this Amendment on the Paper. ... I firmly believe that we may have it in our power to avert from this generation the supreme catastrophe of another war." (This Churchill speech should not be read as proof that his call for air supremacy would have deterred Hitler from invading Poland in 1939 and thus triggering the UK's declaration of WWII. As it was, despite declaring war in 1939 on behalf of Poland, we made no effort to defend Poland, merely sending an expeditionary force to France, which failed to prevent that country's invasion. Churchill was as much duped by air power in 1934 as the appeasers and disarmers!)

Samuel T. Cohen (RAND, neutron bomb inventor), Tactical Nuclear Weapons and U.S. Military Strategy, *Orbis*, Spring 1971: "The Korean war, a military and political trauma, forced a change in U.S. policy. In 1953 the United States decided to prevent such involvements in the future through a policy of nuclear retaliation against the aggressor. Pragmatically speaking, the Eisenhower policy worked. The United States maintained her foreign commitments while she deterred

aggression at levels even substantially below that which had occurred in Korea. It should be realized, however, that during those years the United States held a nuclear arsenal far superior to the Soviet Union's. American involvement in the Vietnam war began under the Flexible Response policy adopted by the Kennedy Administration. [Before President Johnson in 1964 ruled out the use of tactical nuclear deterrents in Vietnam during his 1964 election campaign's "Daisy Advert" against presidential nominee Goldwater's Republican campaign to use tactical nuclear weapons to effectively defoliate the Ho Ching Ming Trail logistics routes, and end the insurgency.] ... the opinions of Denis Healey, then British Defense Secretary, merit our attention: 'I don't think it would, in fact, make sense for NATO to aim at an all-out conventional defense against an all-out Warsaw Pact conventional attack because all Soviet exercises and training assume the use of nuclear weapons from the word "go," so I think an all-out conventional attack is very unlikely ... the other side would use nuclear weapons to begin with and there's a great deal of evidence for that, both in the exercises they do and what they write in their strategic journals. [*Source: "The Nuclear Genie, " Radio 4 (London), Aspects of Government Series, April 7, 1970.*] ... In 1968, U.S. Congressman Craig Hosmer, a senior member of the Joint Committee on Atomic Energy, wrote to Secretary of Defense Clark Clifford expressing his opinion on the consequences of not modernizing the stockpile to give it discriminate capabilities: '... If indeed, the Soviets have been busy perfecting a family of clean, discriminate tactical nuclear weapons and the time should ever come when they decide to use them against us and our allies, a time will come when the devastation and contamination from tactical nuclear war will come from *our* stockpile. Or, a time will come when because of the inevitability of such devastation and contamination, the Soviet appetite for Free World territory will have to be appeased'. [*Source: Congressional Record, July 31, 1968, pp. H7955-7956.*]"

US Defense Secretary McNamara (interviewed by Stewart Alsop in December, 1, 1962 issue of the *Saturday Evening Post* page 18):

"I believe myself that a counterforce strategy is most likely to apply in circumstances in which *both* sides have the capability of surviving a first-strike and retaliating selectively. ... a nuclear exchange confined to military targets seems more possible, not less, when *both* sides have a sure second-strike capability." (NATO's massive retaliation policy, espoused in its Military Committee document MC-14/2, was replaced by "flexible response" in MC-14/3, in 1967.)

A further argument here was the introduction of PAL type "locks" on nuclear weapons. The original classified RAND Corp memorandum on this issue, **RM-2251 *On the Risk of Accidental or Unauthorized Nuclear Detonation*, by Ikle, Aronson and Madamsky,** made the point that weapons with "locks" makes possible a wider range of nuclear deployments, than weapons without locks. I.e., you can give "locked" nuclear bombs to forces on the battlefield or aboard tactical aircraft, with a secure (scrambled or encoded) communications link, and the President can then give out the unlock-code over the secure link if and when nuclear use is authorized, e.g. the President can talk to the forces on scrambled radio link to ascertain precisely what the situation on the ground is, before releasing the unlock code. This technology simply eliminates the usual "loose nukes" fears about unauthorized nuclear use causing needless escalation risks. (This context is for limited nuclear war on the battlefield, so command, control and communications issues are ignored. In the event of a general nuclear war in which communications satellites etc were attacked by radiation or EMP, there are other systems in place to control nuclear forces. In April 1982, the US DoD directed the development of the Defense Data Network, DDN, based on RAND Corporation's work on distributed data packet switching to eliminate vulnerable centralized hubs in networks. RAND Corp's Paul Baran realised in 1961 that although the few central hubs in communications networks then in place were only 5% of the network, their destruction in nuclear war studies eliminated 95% of communications. By de-centralizing to a low-level distributed network in which information can by-pass the central hubs and be routed by any node on a mesh-type network, communications losses were reduced by a factor of 20. Data would be broken down into small blocks or "packets", including an address and re-assembly instruction, e.g. part 3 of 10. The computer receiving the packets would re-assemble them in the correct order when all were received. The basic principles involved led to US DoD's ARPANET, and after the development of personal computers in the 1970s, were later used to construct the open internet, which is thus as much a product of nuclear war survival research as modern computers, space travel and nuclear power.)

ABOVE: **1981 standard Russian nuclear war civil defense manual *EVERYBODY SHOULD KNOW THIS*. People in rural areas had fallout shelters, while those caught out in the open were instructed to duck and cover to avoid displacement by blast winds, and injury by flying debris and the thermal flash.** Detailed calculations of the blast hardness of these shelters were published in **technical book form (linked here).**

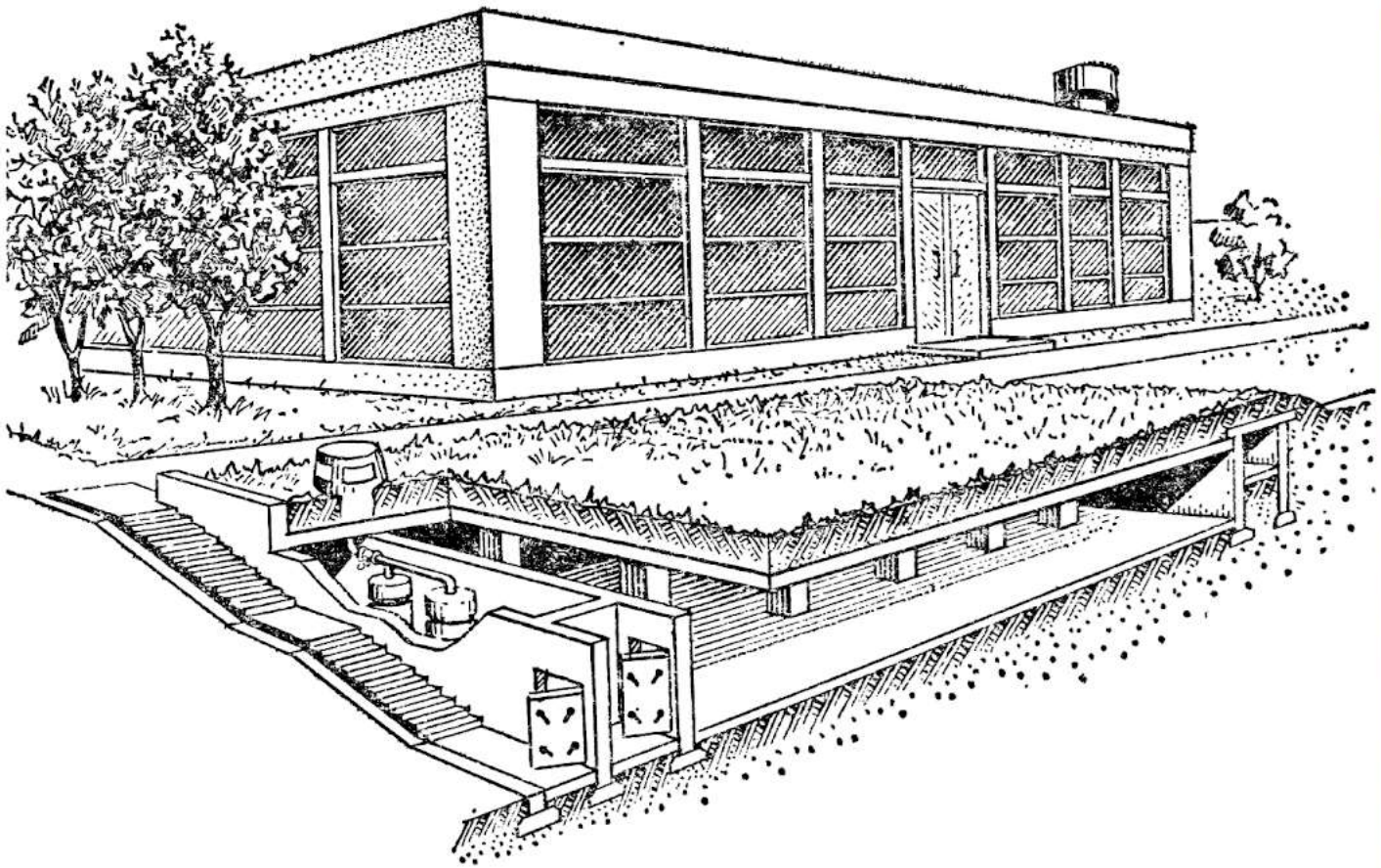


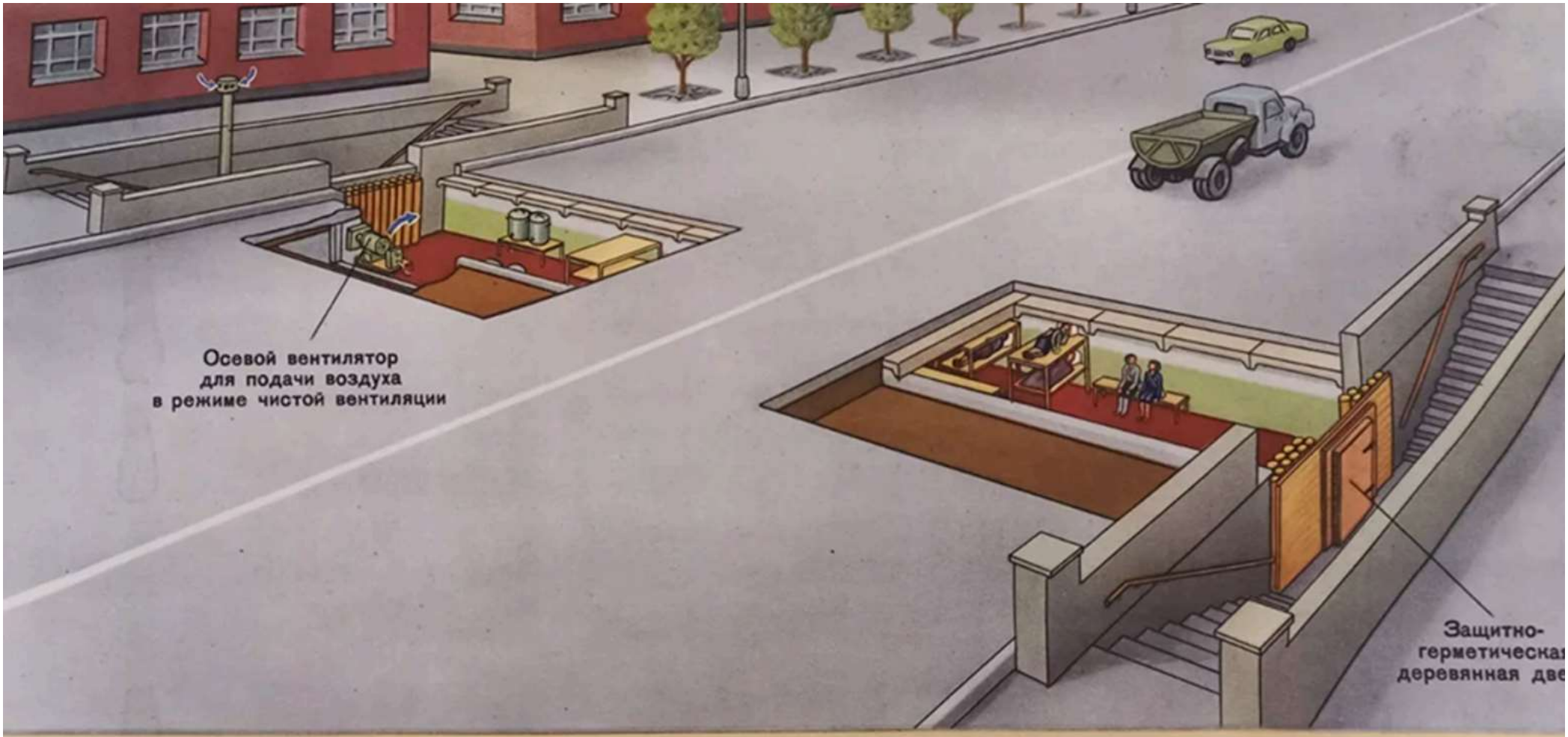
Рис. 4. Отдельно стоящее убежище

DOUBLE BLAST DOOR (VERY HARD) CITY SHELTER SHOWN IN THE 1981 EDITION OF THE STANDARD RUSSIAN NUCLEAR WAR CIVIL DEFENSE MANUAL "EVERYBODY SHOULD KNOW THIS".





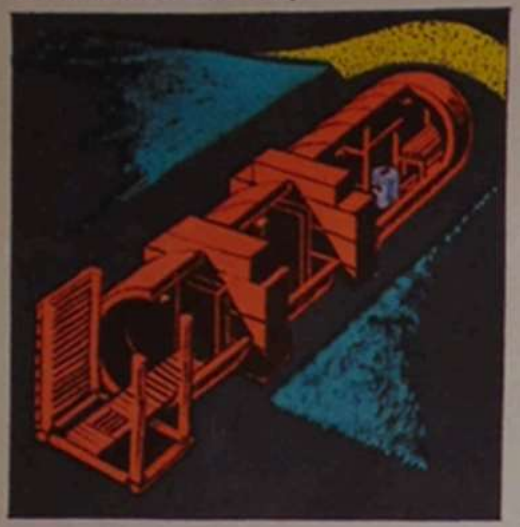
September 5, 1988 dual-use nuclear shelter/underground car park poster: 50000 copie

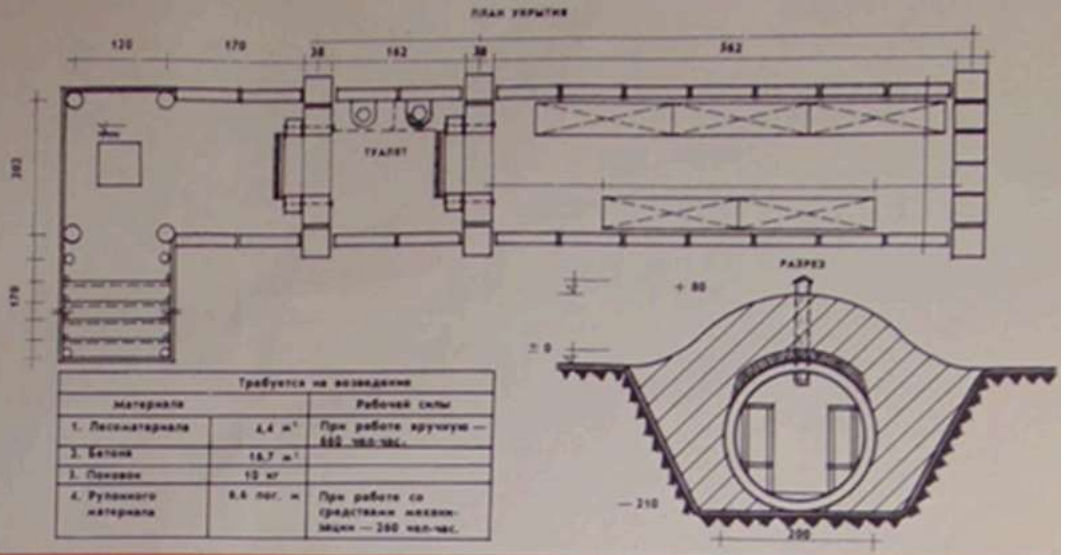


Приспособление подземного перехода под быстровозводимое убежище

УКРЫТИЯ

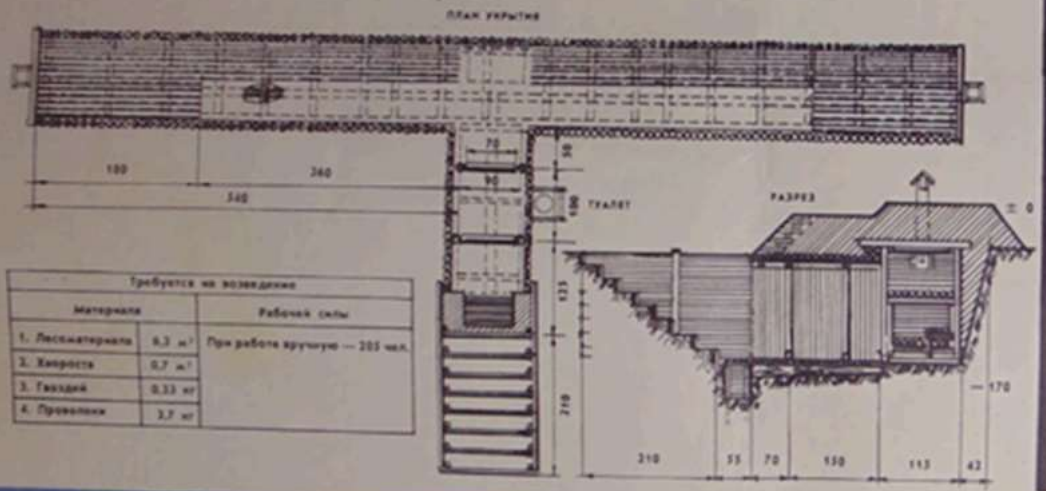
УКРЫТИЯ ВОЗВОДЯТСЯ В ПРИГОРОДНЫХ И ЗАГОРОДНЫХ ЗОНАХ ДЛЯ РАЗМЕЩЕНИЯ И ЗАЩИТЫ НЕРАБОТАЮЩИХ СМЕН ПРОМЫШЛЕННОГО ОБЪЕКТА (ФОРМИРОВАНИЙ ГО), А ТАКЖЕ РАБОЧИХ И СЛУЖАЩИХ ПРЕДПРИЯТИЙ (СОВХОЗОВ, КОЛХОЗОВ) И ИХ СЕМЕЙ, РАСПОЛОЖЕННЫХ В ЭТИХ РАЙОНАХ. УКРЫТИЯ ВОЗВОДЯТСЯ, КАК ПРАВИЛО, ИЗ ЭЛЕМЕНТОВ СБОРНОГО ЖЕЛЕЗОБЕТОНА ИЛИ ДЕРЕВЯННЫХ КОНСТРУКЦИЙ. УКРЫВАЮЩИЕСЯ ПОЛЬЗУЮТСЯ ПОСТОЯННЫМ ОБЪЕМОМ ВОЗДУХА В УКРЫТИИ, СЛЕДОВАТЕЛЬНО, УКРЫТИЕ ДОЛЖНО БЫТЬ ОБЕСПЕЧЕНО ЕСТЕСТВЕННОЙ ВЕНТИЛЯЦИЕЙ.



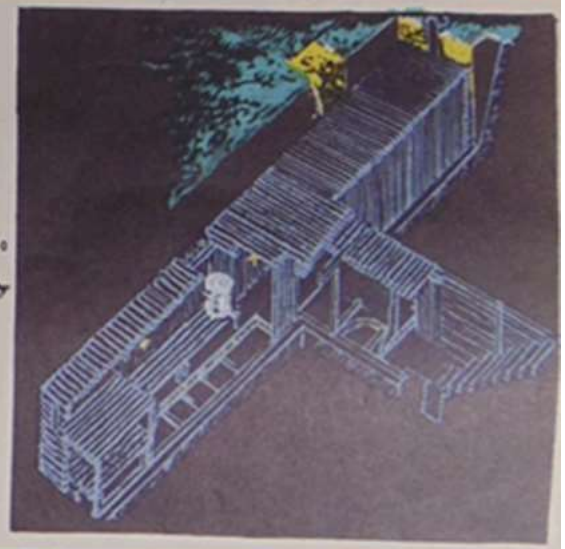


Требуется на возведение		
материалов		Рабочей силы
1. Лесоматериала	4,4 м³	При работе вручную — 882 чел.-час.
2. Бетона	16,7 м³	
3. Поковок	10 кг	
4. Рулонного материала	8,6 пог. м	При работе со средствами механизации — 380 чел.-час.

УКРЫТИЕ ИЗ ЖЕЛЕЗОБЕТОННЫХ КОЛЕЦ НА 20 ЧЕЛОВЕК



Требуется на возведение		
Материалов		Рабочей силы
1. Лесоматериала	0,3 м³	При работе вручную — 205 чел.
2. Хвороста	0,7 м³	
3. Гвоздей	0,33 кг	
4. Проволоки	3,7 кг	



УКРЫТИЕ БЕЗВРУБОВОЙ КОНСТРУКЦИИ НА 20 ЧЕЛОВЕК С ОДНОРЯДНЫМ РАСПОЛОЖЕНИЕМ СИДЕНИЙ



УКРЫТИЕ ИЗ ДЕРЕВЯННЫХ КОНСТРУКЦИЙ НА 20 ЧЕЛОВЕК



4) На улице — быстро иди в убежище (укрытие), которое укажет дежурный. 1983 dispersal/shelter poster

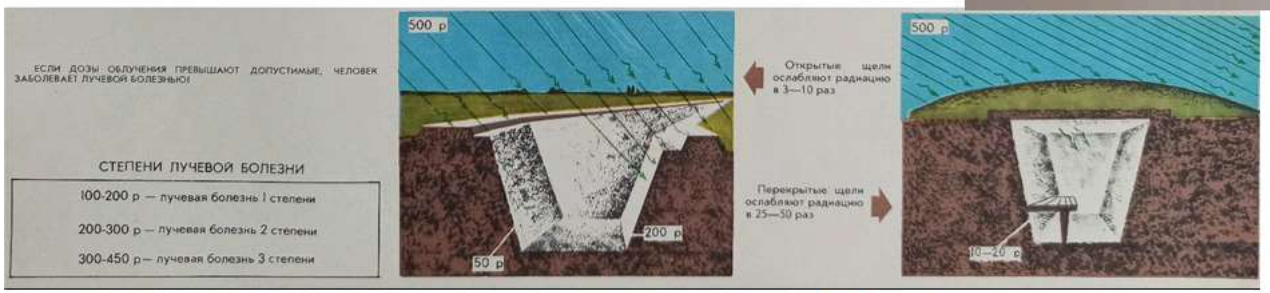


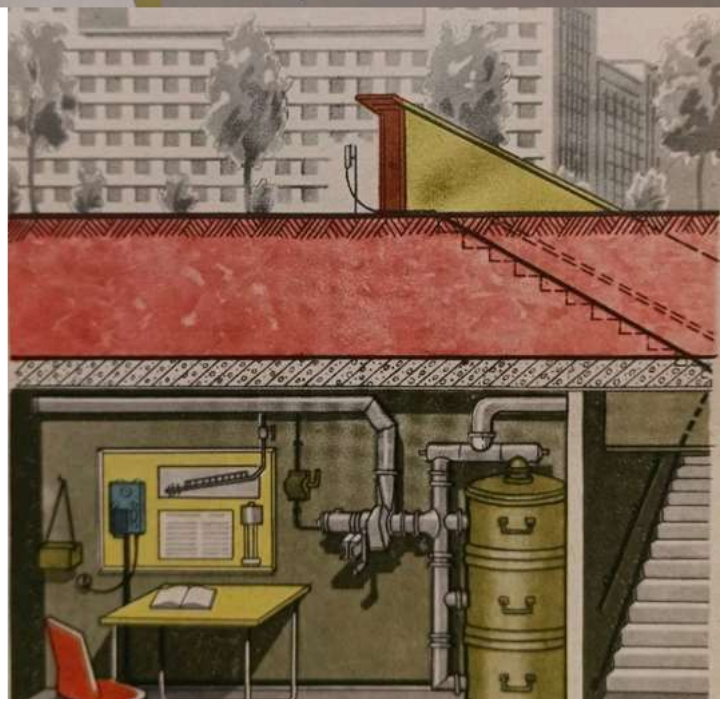
1) В школе — по указанию учителя быстро оденься, возьми противогаз (респиратор) и вместе с классом иди в убежище (укрытие).



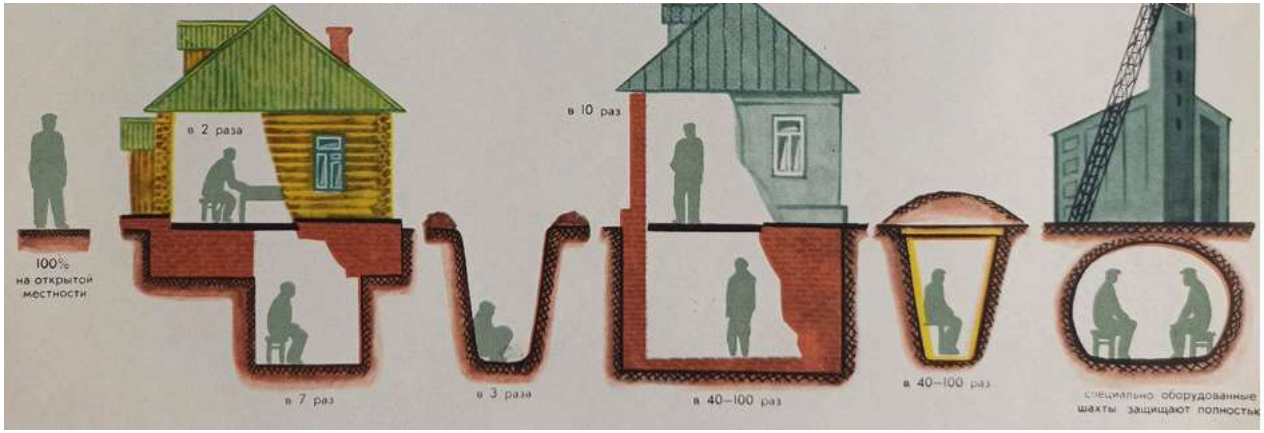
March 16, 1983 printed USSR cold war poster "Rules for using a gas mask"















При воздушном взрыве на наземные объекты действует излучение со всей поверхности светящегося шара, обращенной в сторону объекта.

При наземном взрыве поверхность светящейся области меньше, кроме того, нижняя ее часть покрывается клубами пыли; световое излучение в этом случае меньше, чем при воздушном взрыве одной и той же мощности.



September 19, 1980 printed double-blast doors dual use shelter/car park

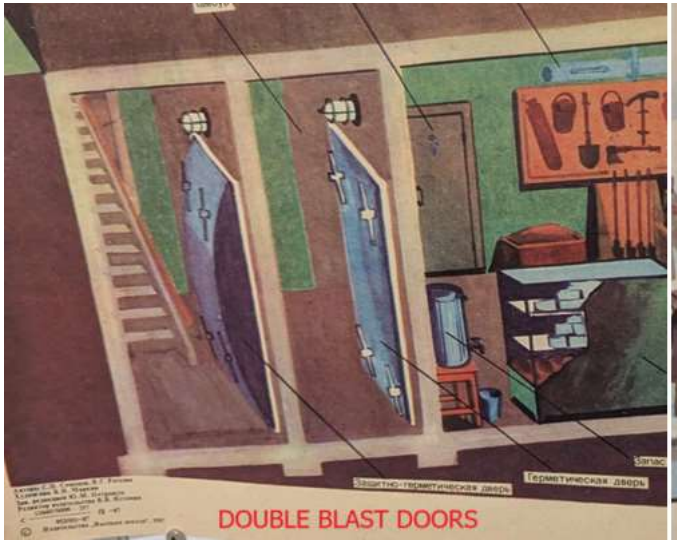


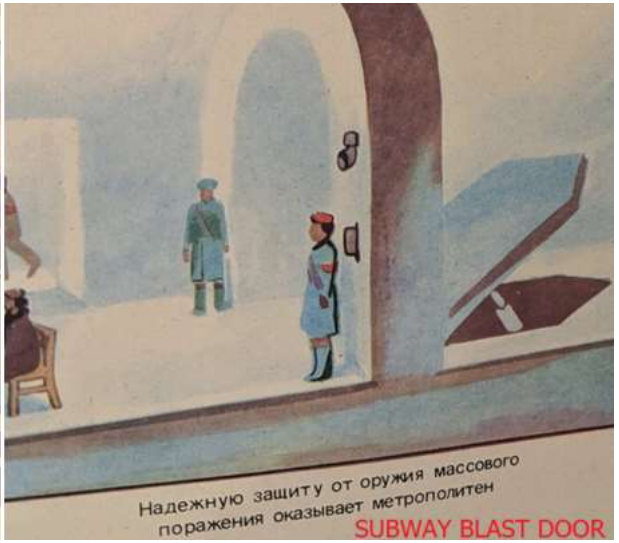


1987 USSR Nuclear War Shelters Poster by Yalansky Viktor Grigorievich, showing hard double blast doored reinforced basements, underground car parks, subway stations ("dual-use" shelters)









ABOVE: The American CIA has **declassified some parts of the Top Secret 1986 Interagency Intelligence Memorandum *Soviet Civil Defense* illustrating the blast hardness of the dual-use underground metro-nuclear shelter transport-survival systems in many Russian cities, *which are basically just underground tube train systems with heavy hydraulic blast doors and filtered ventilation systems plus sanitation and food/water depots provided, roughly as hard as nuclear silos (e.g., surviving 5,600 psi peak overpressure for a 1 megaton yield*). Despite this hard level of protection, certain nutters in the West still think it is possible to deter dictatorships by targetting their civilians to save a few bucks. It just isn't a credible deterrent against invasions, as shown by recent actions by Russia.** Ignoring these hard facts leads to invasions, slaughter, conventional war, and the risk of WWIII. So the only way to credibly deter the Russians is to ignore that anti-nuclear countervalue drivel, and go into counterforce deterrence, tactical nuclear weapons to win a nuclear war on the battlefield against invasions, thus deterring them in the first place. **Missiles are more costly than blast doors despite ranting lies from Professors of War Studies in London, who need to urgently educate themselves as to the facts before shooting off their mouths in public**!

Sir Lawrence Freedman (professor of war studies at King's College, London) completely misrepresents Kahn in his deceptive *Evolution of Nuclear Strategy* (2nd ed, 1989) by referring (in an endnote) to Glasstone's bogus free-field nuclear effects treatment as "authoritative" and to the 1946 Atomic Energy Act compiling lawyer James Newman's bogus as well as biased "review" of Kahn's *On Thermonuclear War* in *Scientific American* as an assessment of "the distinguished mathematician" (Newman contributed mathematical trivia to *Scientific American*). Newman's 1946 Atomic Energy Act (written for Senator Brien McMahon) illegally and disastrously terminated the UK-USA postwar nuclear collaboration agreement, causing the Cold War crisis in the first place by failing to deter Russian expansion in the late 1940s. Freedman mentions Kennedy's no-cities policy but then goes on about McNamara's Mutual Assured Destruction dogma (not a strategy!), without noting Kahn's dismissal of its validity for deterring the escalations that led to both world wars, which arose due to invasions of third parties (provocations, not direct attacks on the UK)! So "mutual assured destruction (MAD)" never replaced limited war (counterforce, aka type 2 deterrence) as a credible strategy, but was just type 1 deterrence. At no point in the Cold War after the introduction of tactical nuclear weapons in the 1950s was there a period when type 2 deterrence (limited nuclear war, tactical weapons) was abandoned and type 1 deterrence (MAD) replaced it. But Freedman fails to say so! Finally in chapter 25, on page 377, Freedman tries to introduce "The Schlesinger Doctrine" for limited nuclear war as somehow being a step backward, towards McNamara's 1962 "no cities" policy: he argues that 1973-5 US Defense Secretary James R. Schlesinger was a former RAND Corp director of strategic studies (1963-9) and CIA Director (1973) who "shared the growing scepticism on the value of emphasis being accorded assured destruction criteria in US policy." Then on page 393, Freedman states:

"The difficulty in avoiding targetting issues can be illustrated by the Carter Administration. At the start ... Carter displayed a marked adversion to nuclear weapons, toyed with ideas of minimum deterrence, and dismissed notions of limited nuclear war. ... In July 1980 President Carter approved Presidential Directive 59, which aimed to improve deterrence by improving the capacity for a prolonged but limited nuclear war. The prime targets would be ... military forces and ... Soviet leaders in their bunkers. The ability to fight a prolonged war would be maintained by a 'secure strategic reserve' ... The plan would be flexible enough to allow for retargetting ... Thus more and more flexibility was built into the system. ... **[Hudson Institute experts] Colin Gray and Keith Payne wrote ["Victory is Possible", *Foreign Policy,* n39, Summer 1980, pp. 14-27]: 'The USSR with its gross overcentralization of authority ... should be highly vulnerable to such an attack. ... If the Moscow bureaucracy could be eliminated, damaged, or isolated, the USSR might disintegrate into anarchy'."**

But then Freedman uses that Gray and Payne quote as merely a smokescreen to cover up the *continuous deterrent requirement since the 1950s for Kahn's type 2 deterrence of major provocations by having a limited nuclear war capability to deter invasions,* and, then, in this 1989 2nd edition, Freedman - following the quotation - immediately tries to sneer at the idea that the USSR is "fragile" and can collapse in this way, *just at the very time that the USSR was actually collapsing under economic pressure from the Reagan-Bush arms race and SDI!* Freedman similarly makes no effort to discuss T. K. Jones' correct and factual dismissal of ACDA fake nuclear collateral damage casualty rates, only mentioning T. K. Jones in footnote 47 on page 477 of his endnotes, using a totally bogus, biased secondary source, namely Robert Scheer's book *With Enough Shovels* which ignores the facts entirely about the efficiency of simple shelters in Hiroshima, Nagasaki, nuclear and high explosive tests! In summary, Freedman's stuff is entirely fake news/propaganda trash, if seen from the perspective of honest history, and real deterrence of the escalatory causes of all world wars to the present day. A credible deterrent against invasions that escalate into world wars must be the basis for avoiding tactical nuclear warfare. There is also the problem that Freedman promotes repeatedly the CND weapons effects propaganda-biased anti-civil defense fanatical lies, since he was the person who got Bill Massey of the Sunday Express to water down my article debunking pro-war CND type "anti-nuclear" propaganda lies on civil defense in 1995, claiming civil defense is no use against a H-bomb, which Freedman claims falsely is cheaper than dirt cheap shelters, exactly what Freedman wrote in his deceptive letter published in the 26 March 1980 Times newspaper:

"for far less expenditure the enemy could make a mockery of all this [improvised civil defense] by increasing the number of attacking weapons"

which **ignores the nuclear weapon tested facts from the fifteen WWII Anderson shelters(together with concrete structures and trenches) proof-tested at the 1952 UK Hurricane nuclear test by the physicists Frank H. Pavry and George R. Stanbury of the UK Home Office Scientific Advisory Branch to the cheap but hard Russian city shelters, e.g. the CHEAP Russian dual-use concept of simply adding blast doors to metro tubes and underground car parks, etc. (as we prove with photos and declassified Russian reports, below).** In any case, civil defense makes deterrence credible as even the most hard left wingers like Duncan Campbell acknowledged on page 5 of War Plan UK

Table I-4
Partial Cost of Soviet Civil Defense, 1984

	Billion 1970 Rubles	Billion 1984 Dollars
Total	**0.47**	**4.53**
Manpower—military and civilian	0.20	3.51
Military units		
Operation	0.10	0.31
Construction and maintenance	0.01	0.07
Annual blast shelter construction	0.16	0.65

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16. The extensive and largely successful use of the Moscow subway for civil defense during World War I probably encouraged the Soviets to integrate the subways into planning for the postwar era. The advantages of depth and secrecy inherent in subway construction techniques proved to be of special utility to plans for leadership protection.

17. Protective facilities connected to the subways are of two basic types: regular bunkers—some of which are very deep multilevel structures—for leadership and communications elements, and protective facilities off the public subway lines, which would be used for essential workers, wartime economic reserves

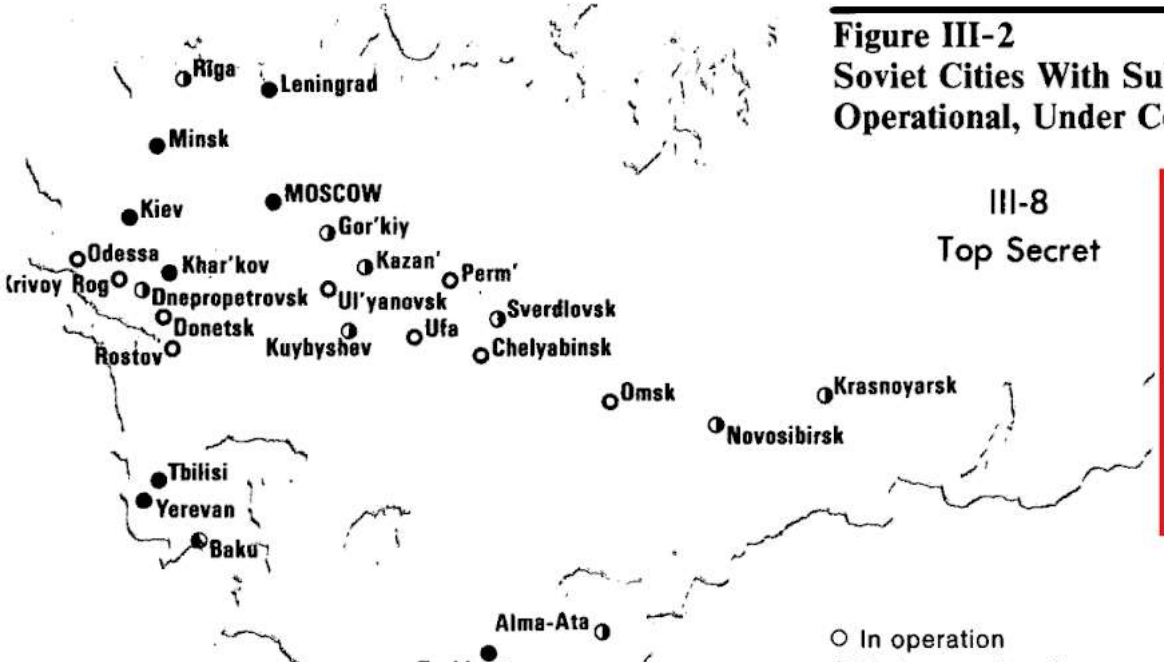


Figure III-2
Soviet Cities With Subway Systems Operational, Under Construction, or Planned

page III-8:

shelter space. The deepest could be hardened against pressure as high as 38,000 kilopascals (5,600 psi) from a 1-megaton weapon. There are also spur lines and possibly dedicated subway lines serving some of these facilities. Reporting indicates that civil defense features of both the public and classified facilities are tested regularly

43. Since 1981, our estimate of the number of cities to evacuate has ranged from a minimum of 279 to a

(Paladin Books, London, 1983): "Civil defence ... is useless, if need be, of putting that deterrence policy into those who believe in it, into practical effect." (Campbell however, while praising the Russian civil defense propaganda, simply lies in that book that none of British shelters were tested, when they were exposed to UK nuclear tests from the very first shot at Monte Bello onwards as stated by test director William G. Penney in a BBC radio broadcast at the time which announced that the whole point of the near surface burst, i.e. 2.7 m depth in ship, Hurricane test was to get *civil defense data, which was successful with "complete records" being obtained* and the test would have been done on a tower otherwise!) Sir Freedman, like CND, and the other propaganda-deceived critics of Kahn, is totally wrong and repeatedly behaves like dangerous fact-dismissing fools on the civil defense and tactical nuclear deterrence facts analogous to the 1930s era liars who declared war is impossible by promoting gas effects myths by an exaggeration factor of 360,000,000, to mislead the public about war stategy, causing failure of credible deterrence, appeasement and thus a second unnecessary world war. This is not hypothetical, since all these "guys" (being polite about liars and loons) have blood on their hands from disarming credible Western deterrence, causing many wars which caused unnecessary deaths and suffering. The mass media is part of this "profitable" money-making war scam. As Thomas Schelling argues in the Foreword to Larsen and Kartchner's *On Limited Nuclear War in the 21st Century* (Stanford Security Services, 2014, pp xi-xiii:

"During the Cold War the possibility that the president of the United States might authorize nuclear weapons to be used selectively was opposed by hawks as 'hold back SAC', a pusillanimous doctrine. It was also opposed by doves as possibly too much a temptation to a president ... The judgement of the editors of this volume, and my judgement, is that both arguments have merit but ... nuclear restraint ought to be encouraged and facilitated. ... there have been, since 1945, eight or nine wars in which one side has nuclear weapons and chose not to use them! ... That's one kind of limited nuclear war, limited 'nuclear' because the weapons were available and undoubtedly influence both sides in the war. ... Exploring alternative possible limits, identifying plausible agreeable limits, communicating suggestions or proposals, or just being seen and heard to discuss the idea of mutually recognised limits and how they may be arrived at is a likely prerequisit to arriving at understanding how nuclear limitation - including the limit of no nuclear use - can be overtly or tacitly identified as common understanding."

Perhaps Schelling had read Dr Keith B. Payne's 2008 *Great American Gamble* (National Institute Press, 471pp), which is a thorough debunking of Schelling's fast and easy, and repeatedly disproved (Vietnam, Iraq, Afghanistan) coercive destruction dogma, relying on fake analogies like law enforcement in society (which doesn't deter even crime, let alone accidents, despite Schelling's sophistry. E.g. Payne's 2008 *Great American Gamble* at pages 194-9: **"Schelling's analogies to pedestrians and neighbors were intended to illustrate how naturally deterrence works; in fact, they illustrate why deterrence cannot be relied on ... pedestrians tragically do walk in front of speeding autos or buses, and occasionally vehicles come over the curb ... Drivers impaired by alcohol often decide to get behind the wheel despite the severe potential costs ... Such high-risk behavior is not the norm, but it is very familiar. In addition, some neighbors do deliberately shoot and kill each other** [e.g. war-crazy thug terrorists or even drug or alcohol dependent ageing dictators coming to the end of their natural lives in any case, *can't be deterred even in principle*; the "threat" of the electric chair didn't exist for say the 9/11 aircraft hijackers who intended to die in their "war", or indeed Kamikaze pilots back in 1945, or for the demented Hitler in his Führerbunker with his cyanide capsule supply handy, thus the failure of deterrence is a real risk]."

Payne's 2008 *Great American Gamble* at page 266 goes still further against Schelling's claims that fear of escalation is the essence of strong deterrence:

"There are numerous ... examples of leaderships *deliberately* lighting or embracing the powder key of escalation despite recognition that their own futures were at great risk. Apparently rational leaders ... effectively demonstrate the error embedded in the balance of terror tenets. ... Russia's decision to enter WWI in 1914 was deliberate, for example ... Similarly, British historian Sir Michael Howard has characterized German decision making in 1914 as ... 'very much like madness'. Historian Holger Herwig quotes the Prussian War Minister General Erich von Falkenhayn as observing on August 4, 1914 that, 'even if we go under as a result of this, still it was beautiful.' Professor Herwig goes on to observe, 'These almost surrealistic words ... encapsulate the mood that prevailed among Germany's political and military elite ...'. ... The Japanese attack on Pearl Harbor in 1941 similarly was seen by senior Japanese leaders as a prospectively fatal roll of the dice ..."

Top Secret
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maximum of 420 because of continued refinements in our methodology and improved information on the number of cities evacuating. We currently estimate as many as 331 cities might be evacuated in wartime
Declassified in Part - Sanitized Copy Approved for Release 2013/02/08 : CIA-RDP90R00038R000200160001-6
From: CIA Interagency Intelligence Memorandum, Soviet Civil Defense: Objectives, Pace and Effectiveness, Top Secret classified, February 1986 (extensively redacted)

Real evolution of tactical nuclear weapons limited nuclear war strategy (debunking Sir Lawrence Freedman's and CND's attempts to marginalise limited war)

1. 1945-54: Atomic Retaliation--plus the overwhelming dominance of the American mobilization base.

2. 1954-62: Massive Retaliation--increasingly supported by the possible employment of tactical nuclear weapons.

3. 1962- : Flexible Response--sophisticated U.S. targeting strategy designed to limit damage and reduce risk of city exchanges--reinforced by conventional and tactical nuclear capabilities in Europe.

SOURCE: James R. Schlesinger, RAND Corp paper P3574, *European Security and the Nuclear Threat Since 1945*, page 9.

David Griggs testimony against Oppenheimer:

Q What was it?

A There were three things about this general area of the Vista Report that I regarded as unfortunate from the standpoint of the Air Force. I can't be sure that all three of these things were in the draft that was written by Dr. Oppenheimer, but I think they were. However, the first and perhaps most controversial point as far as we in the Air Force were concerned, I am quite sure, was in the part that was said to have been prepared by Dr. Oppenheimer. This was a statement substantially to the effect that it was recommended that the President of the United States announce that the United States would not use its strategic air force in attack on cities or industrial economy, as I recall the statement, until our cities had been attacked.

(Oppenheimer hearings transcript, page 2561.)

UNITED STATES ATOMIC ENERGY COMMISSION

VOLUME XIV

In the Matter Of:

J. ROBERT OPPENHEIMER

(David Griggs was geophysics professor at UCLA)

2565

I might say further on that, that Dr. Teller had previously spent a period of a few days, I believe, at the Vi Project, specifically suggesting ways and means in which thermonuclear weapons could be useful in a tactical campaign. There have since been other analyses of this specific problem and the conclusions have not been consistent with that statement in the Vista Report. (Page 2565)

Oppenheimer's secret classified personal testimony on his own key "flexible response"-contribution to Project Vista, *the argument to shift nuclear deterrence away from MAD style 1930s exaggerated "knock-out blow" all-out countervalue bombing of cities to instead avoiding civilian collateral damage by stopping/deterring the invasions that actually triggered both world wars, to end conventional wars and to ensure global security* (e.g. deterring/stopping invasions such as Belgium 1914, Poland 1939) is linked here (the Oppenheimer quotation below is from the USAEC Oppenheimer Security Hearings transcript, pages 2296-8):

"... as you go into battle ... you have capabilities which allow you a lot of options, which give you choices that you can make at the time ... if your guesses have been wrong, your technical preparations are such that you can change quickly in the course of the battle. If you are wrong about the effect of a bomb on an airfield ... you can make the proper reassignment ... to do what is effective. These were the two guiding ideas that I believe I brought into the organization of the report."

These Oppenheimer hearings - ignored by propaganda driven historians and a very badly researched populist fictional film alleging to depict the hearings - actually prove how Project Vista was used by opponents to Oppenheimer's arguments - *claiming clearly that Oppenheimer's contribution to Vista was that he actually wanted to get rid of incredible, M.A.D.-type strategic city countervalue deterrence and replace it with credible general war-averting tactical nuclear deterrence for the battlefield* - see UCLA geophysics Professor David Griggs testimony in vol XIV, particularly pages 2561-5, as linked here, which includes the claim that Teller worked on Project Vista for the employment of high yield thermonuclear weapons for *tactical* use!

The most important fact is that it is impossible for either side to attain a high-confidence first-strike capability.

POSSIBILITY OF LIMITED ATTACK AND CIVILIAN CASUALTIES

Senator SYMINGTON. On page 56, you talk about a "response to a limited attack on military targets that caused relatively few civilian casualties."

Do you really believe that such an attack against the United States is possible, and just what do you mean in numbers by relatively few civilian casualties?

Secretary SCHLESINGER. I think that hundreds of thousands of casualties, as opposed to tens and hundreds of millions, must be regarded as relatively few in number. But I am talking here about casualties of 15,000, 20,000, 25,000—a horrendous event, as we all recognize, but one far better than the alternative.

EFFECT OF PUBLIC STATEMENTS REGARDING CIVILIAN CASUALTIES

Senator SYMINGTON. Could not public statements by the U.S. civilian leaders like yourself that "military attacks on military targets would cause relatively few civilian casualties," actually decrease the deterrent value of our nuclear forces?

Secretary SCHLESINGER. No, sir, I do not believe so. The reason I do not believe so is that the United States would retain all of the capabilities embodied in the assured destruction notion.

capabilities embodied in the assured destruction notion.

The point is that we would hopefully restrain the use of those capabilities during this hypothetical wartime period so that our potential opponent would continue to have reason to desist from attack on the urban industrial base of the United States.

SOURCE: Pages 19-20 of "US-USSR Strategic Policies", Hearings of the Subcommittee on arms control etc., Committee on Foreign Relations, 93rd Congress, 2nd session on US and Soviet Strategic Doctrine and Military Policies, March 4, 1974.

Captain Graeme Chamley Wynne (1889-1964, co-author of *Military operations, France and Belgium, 1915, Volume I* and author of *If Germany attacks: The battle in depth in the west*), "Pattern for Limited (Nuclear) War: the Riddle of the Schlieffen Plan-1", *Royal United Services Journal,* v102, n608, November 1957, pp. 488-499:

"The recently published American book *Nuclear Weapons and Foreign Policy,* by Dr Henry A. Kissinger, has illuminated the fog of ideas on this vital modern problem. Summarizing the deliberations of 36 American experts over a period of 18 months, he sees the picture of an ever-present U.S. Strategic Air Force maintained equal to its strongest opponent and ready to deliver the ultimate deterrent ... under the shield of that threat he believes that limited wars are possible. ... the publication in Germany last year of the full text of the long-secret Schlieffen Plan ... nuclear weapons fit into Schlieffen's idea of an enveloping line of fire power ... to close in and force a rapid capitulation. ... the German defeats in the two World Wars were due not to Schlieffen's ideas but to the failure of Germany's military and political leaders to apply them effectively. ... [*General Count Schlieffen was Chief of German General Staff from 1892-1905, but was dismissed when 72 by the Kaiser in 1905 and replaced by General von Moltke, who was an ignorant critic of Schlieffen's Plan, despite evidence supporting it from the use of machine guns in the Russian-Japanese war*.] As model for his plan, Schlieffen took Hannibal's classic battle of envelopment at Cannae in 216 BC, in which a Roman phalanx of double Hannibal's strength was annihilated. To make up for his disadvantage in numbers (40,000 versus 73,000), Hannibal, the Carthaginian, strung out his foreign auxiliaries ... He thereby gained the great advantage of being able to operate on a broader front than his opponent despite his numerical inferiority. ... These, spread out around the whole depth of the phalanx, had room for each man to make the fullest use of his weapons, whereas the Romans, driven into a confused mass on the centre [*thus providing a concentrated target, the key point relevant for tactical nuclear warfare*], were so congested in the net closing in upon them from all sides, that they were unable either to use their weapons or to break out. They were rapidly annihilated. ... Hannibal had devised his battle plan as a trick to defeat the Roman phalanx. ... To Schlieffen, Hannibal's victory meant much more than a mere tactical trick. He saw in it the design for the battlefield of the new age of automatic weapons. ... but General von Moltke, Schlieffen's successor, who regarded Schlieffen's unorthodox tactical ideas as impracticable [in the pre-nuclear age], disregarded the plan's three essential requirements. [Reference: German Official History, v4, pp. 508-41. I.e., Moltke refused to position his forces to draw in concentrated enemy forces at weak fronts, then entrap and annihilate the flanks of approaching columns; instead Moltke met force frontally, with concentrated forces versus concentrated force, thus turned WWI into statemate trench war; after 1941 Russia - having studied the problem since 1918 - was eventually to use the technique against the German invasion, helped by its overstretched logistics.] ... Millions of shells were wasted in destroying miles of trenches of secondary or little importance. ... Have British and American military leaders yet seen the flashing beacons of the two World Wars that blazed the doctrine of the Schlieffen Plan? ... Its logical development in the light of modern weapons may well provide a guiding light towards a common understanding for a tactical doctrine suited to a nuclear age."

UNITED STATES ATOMIC ENERGY COMMISSION

VOLUME XVI

In the Matter Of:

J. ROBERT OPPENHEIMER

J R OPPENHEIMER'S SECRET TESTIMONY ON PROJECT VISTA:
TRANSCRIPT AT PAGES 2296-2298

Q Let me turn now to the so-called Vista report about which there has been very considerable testimony and not altogether consistent. Did you in fact prepare a draft of an introduction to Chapter 5 of the Vista Report?

A Yes, I did. It was not a solitary labor. When I got there, I found a mass of drafts, papers and notes. People who had written these were Christie, Bacher, Lauritsen, possibly others. But those were the principal ones. Christie had spent quite a lot of time at Los Alamos quite recently. We went over what they wanted to say and sometimes discussed it from the point of view, did they really want to say it, and were they sure that this was what they wanted to say. I think my contribution to the writing of this was that I -- well, let me back off.

The principal thing they wanted to say was that atomic weapons would be useful in the defense of Europe, in the antiair campaign, and many other ways that you will know as much about as I do, and that for this to happen, developments will learn a great deal, and the primary preparation must be of two kinds. First that you have capabilities which allow you a lot of options, which give you choices that you can make at the time, and second, that you be so set up that if your guesses have been wrong, your technical preparations are such that you can change quickly in the course of the battle. If you are wrong about the effect of a bomb on an airfield, if you are not getting away with it, that you can make the proper reassignment of fissionable material and hardware and aircraft to do what is effective. These were the two guiding ideas that I believe I brought into the organization of the report.

I then with the help of the others drafted a chapter-- either Chapter 5 or its introduction, I don't remember which it was called. It was a matter of some 20 pages, I believe, and had some 20 odd recommendations.

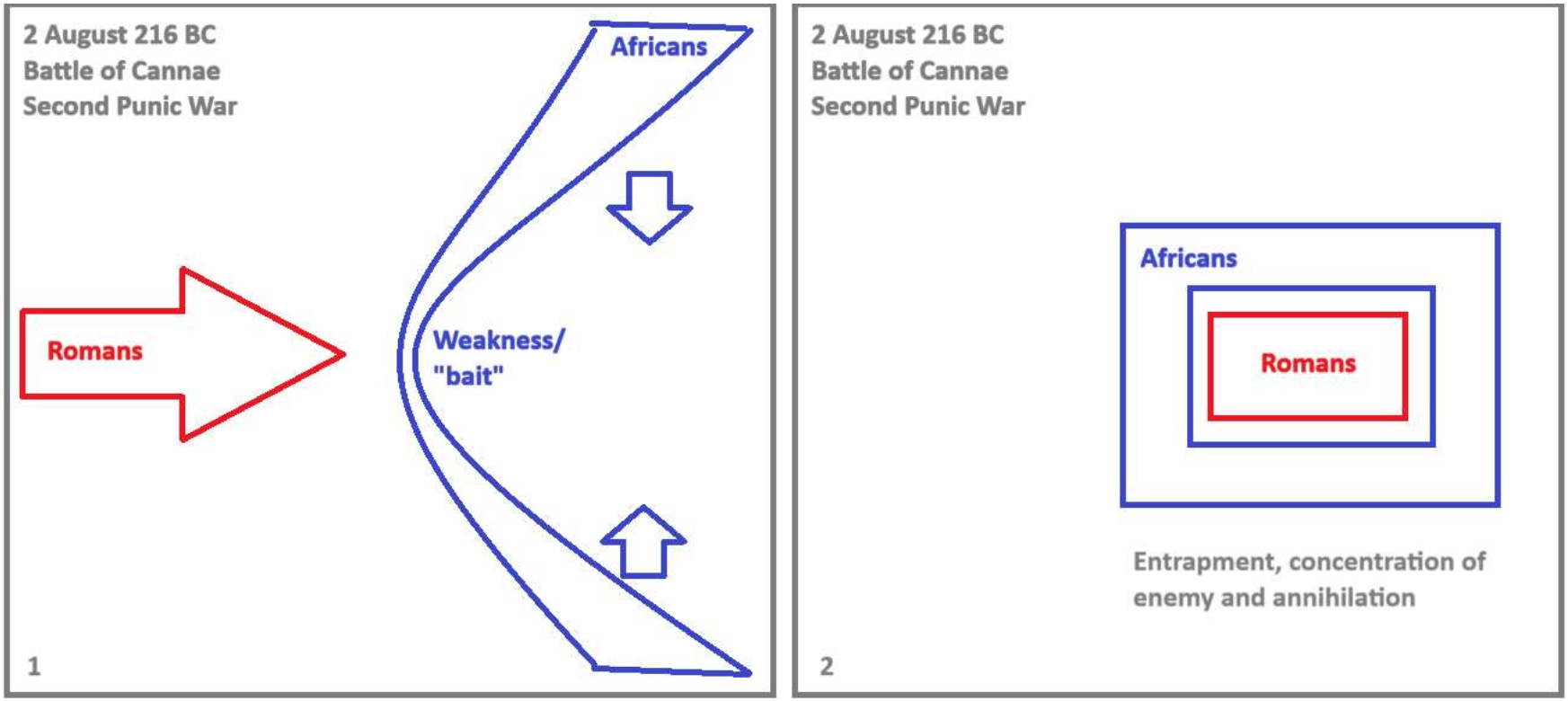
Q Was there in this draft at any stage the suggestion that the United States, this country, should state that it would not use atomic weapons strategically against the Soviet Union until after such weapons had been used against American cities?

A Let me say the best of what I recollect was in there.

much about as I do, and that for this to happen, developments of hardware, of tactics, of command structure, of habits of behavior, of exercises needed to be gone into, which would give to our tactical readiness at least a small part of the training and precision which the Strategic Air Force already had. I believe my contribution apart from incidentals to the writing of this report was a notion that occurred very early and I believe has remained in all drafts, and that is still basic to my own views, and that is that this is not a very fully known subject -- what atomic weapons will do, either tactically or strategically, that as you go into battle, you

It is related to the question you asked but it is not identical with it. We said that we were in a coalition with the Europeans and that one of the things which we must be alert to is how the Europeans would view the destruction of their own cities by the enemy. Therefore, we needed to envisage the situation that would occur if we used our strategic air as a deterrent to the destruction of Europe's cities, as well as our own, and in that circumstance there was still a great deal that could and should be done with atomic weapons, and that we should be prepared for that contingency.

We did not recommend a proclamation.



Captain Wynne continues to drive home his empirical war based thesis (he fought in WWI and was a POW in Germany) for tactical nuclear deterrence/defense analysis by analysing both World Wars I and II in Parts 2 and 3 of "Pattern for Limited (Nuclear) War: the Riddle of the Schlieffen Plan", *Royal United Services Journal,* vol 103, part II: Feb 1, 1958 pp40-50 and part III: May 1, 1958, pp 215-222. From part II:

PATTERN FOR LIMITED (NUCLEAR) WAR: THE RIDDLE OF THE SCHLIEFFEN PLAN—II

By Captain G. C. Wynne

THE British White Paper on Defence, 1957, has met strong opposition. Its policy is to re-arm for total war involving the use of the most destructive modern weapons both as a deterrent to aggression and, if necessary, to destroy an opponent's country and devastate his cities. The British Navy, Army, and Air Force are regarded as having been to a considerable extent supplanted by these deterrent weapons.

The opposition to such a policy has been summed up by an American committee[1] which considers total war with deterrent weapons, though possible, to be highly improbable. Even though Britain is the most vulnerable target in the world to massive retaliation, the prospect of the suicidal consequences to an aggressor must

"The British White Paper on Defence, 1957, has met strong opposition. Its policy is to rearm for total war ... to destroy destroy an opponent's country and devastate his cities. ... The opposition to such a policy has been summed up by an American committee [Kissinger et al.] which considers total war ... highly improbable. ... both the British and American armies are 50 years out-of-date ... A fundamental error in direction led them into the wilderness of obsolete tactical doctrine with which they fought the Second World War ... The mistake originated in December, 1917, during the first World War ... A committee of three major-generals [including the man who later became Editor of the UK Official History - *and then used his position to distort the facts to cover-up his committee's error* - was tasked with analyzing and applying German defenses, but they made the mistake of ignoring the key March 1917-dated German textbook on the need for strong mobile defenses, *Die Führung der Abwehrschlacht* aka *The leadership of the defensive battle,* which British soldiers had just captured at Arras, and instead focussed attention solely on the companion German technical trench construction manual *Allgemeines über Stellenbau* aka *General information about Construction Work,* which just told you how to construct three rows of machine gun nests and infantry dug outs without explaining their tactical use] ... Not only did the committee select the wrong German document as their model; they also misinterpreted it. They mistook the protective infantry in the dug outs between the machine gun nests to be the key centres of resistance and believed the machine gun nests to be supporting weapons. ... The British Army was, therefore, still to fight with rifles and to use machine guns as supporting weapons against a Germany Army fighting with machine guns and using infantry for their protection. ...

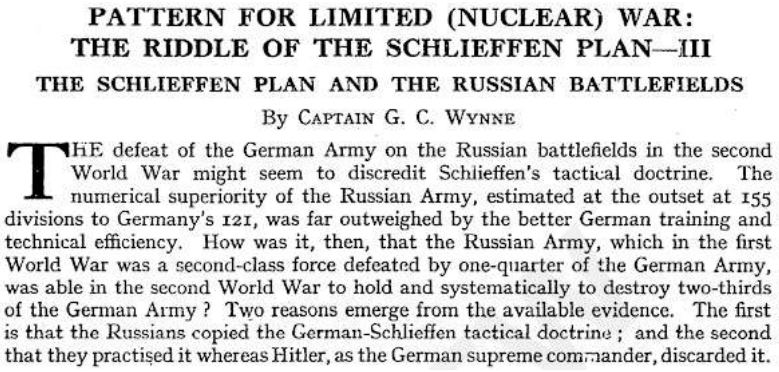
"*The Battle of St. Quenin*. The expected Germany offensive struck a 50-mile sector of the British front on 21 March 1918, and had little difficulty in smashing through this travesty of the German method of defence. ... Within a week, the Germans had penetrated to a depth of 30 miles, inflicting over 85,000 casualties in the British 5th Army alone. Within 3 weeks, the the British Army had 'its back to the wall', or rather the sea ... The Germans halted because their commander could not imagine that the British defence garrison had been almost entirely in the outpost zone. He suspected a strong counter-offensive ... No such British counter-attack formations were, in fact, available; but the Germans, instead of pressing on to the coast, struck elsewhere and thereby saved the British Army from a 1918 edition of Dunkirk [the 1940 ousting of the British Expeditionary Force from France]. The cause of that disaster was given officially as misty weather and a lack of troops ... The real cause was the 'blob' system of defence ... The British Official History had the opportunity, if not the obligation, to unravel the tangle of British battle methods. ... Unfortunately, not one word of all that enlightenment can be found from beginning to end of the History. The editorial viewpoint throughout is that British HQ was right ... The editing of the volumes [British Official History, 1918] and the comments and conclusions, twist the narrative to the outlook of British HQ at the time. To that extent the Official History is not history; it is a rifle-minded illusion of a machine-gun minded war. ...

"A still more important result was that the training of the Army during the interwar years remained unaltered. Its method of attack continued to be the break-in assault on a wide frontage ... Its method of defence remained the 'blob' system of grouping a trench garrison into defended localities. ... So it was that the British Army set out in 1939 to fight the Second World War with basically the same ... battle methods with which it had set out in 1914 ... Once again, it was not given a dog's chance; and for that inexcusable negligence the Official History was mainly responsible. ... Britain re-armed for a war in the air ... a knock-out blow ... to undermine the morale of the population ... The Navy was reduced, as also was the Army, which was to be regarded only as an imperial police force ... The similarity between this re-armament policy and recent White Paper on Defence is in that sense remarkable; for 'air war' read 'nuclear war' and for 'air striking force' read 'hydrogen bombs and guided missiles'. ... The two re-armament policies [German Army vs British RAF] were soon put to the test. At the outbreak of war in September 1939, Britain's independent air striking force ... which had absorbed the bulk of the vast defence expenditure, was grounded ... whereas Germany had a balanced fighting force ...

"Had the British Official History of the first World War done its job, the British Expeditionary Force would not have allowed itself to be marched once again into Belgium, into the jaws of the very same trap from its its predecessor had so narrowly escaped envelopment in August 1914. ... If the mistake made in copying the German method of defence in 1917 had been corrected, the battle frontage could have been held with 4-5 times less manpower, and more effectively [relying on machine guns, not rifles!]. ... *El Alamein, October 1942* El Alamein was a great British victory, but ... why [did] Rommel, the most brilliant of Schlieffen's disciples [stick to] rigid defensive [rather than the Schlieffen's mobile defense?] ... he had neither petrol nor ammunition to *fight a mobile defence* and ... Hitler's order was to fight the battle where he stood. ... Hitler was putting every available man, tank and gun, every shell and every drop of petrol, into a last desperate effort to cross the Volga and outflank the Russian defences of Moscow to the north. ... As a result the British 8th Army at Alamein was able to gain complete command of the air, and a great superiority in manpower, artillery and armour [*not to even mention Monty's use of secret decoded orders from Hitler to Rommel, sent by radio transmission which was intercepted and then decoded by computer at Bletchley Park, UK; nevertheless the key point is that Britain won that and subsequent battles by courtesy of Hitler's decision to fight a war on multiple fronts, to ignore Schlieffen's tactics and mount frontal attacks, then to use fixed defenses with no break-out permitted*]. ...

"The majority of British and American casualties and the overlong duration of the war were due to these and similar tactical errors. They were covered up at the time ... the maximum German resources [including 70% of the German Army] continued to be sent to the Russian Front. ... The Second World War was not a [knockout blow, essentially gas bombing] war in the air as forecast by the British Government in its re-armament policy of 1936-9. It was not won by the obliteration of cities ... This emphasis on the obsolete tactical ideas with which the British and American Armies fought the second World War is in order to bring to notice the fact that the mistakes have not yet been corrected. Had the British and Americans held their battlefront in Korea (1951-53) with firepower instead of with manpower ... supply difficulties would have been avoided and the front held more effectively ... The British Army will never be able to produce a small, hard-hitting expeditionary force, easily airborne for overseas commitments, until these past mistakes have been corrected and its tactical outlook revolutionized."

Captain Wynne, "Pattern for Limited (Nuclear) War: the Riddle of the Schlieffen Plan-III", *Royal United Services Journal,* vol 103, part III: May 1, 1958, pp 215-222:



PATTERN FOR LIMITED (NUCLEAR) WAR: THE RIDDLE OF THE SCHLIEFFEN PLAN—III

THE SCHLIEFFEN PLAN AND THE RUSSIAN BATTLEFIELDS

By Captain G. C. Wynne

THE defeat of the German Army on the Russian battlefields in the second World War might seem to discredit Schlieffen's tactical doctrine. The numerical superiority of the Russian Army, estimated at the outset at 155 divisions to Germany's 121, was far outweighed by the better German training and technical efficiency. How was it, then, that the Russian Army, which in the first World War was a second-class force defeated by one-quarter of the German Army, was able in the second World War to hold and systematically to destroy two-thirds of the German Army? Two reasons emerge from the available evidence. The first is that the Russians copied the German-Schlieffen tactical doctrine; and the second that they practised it whereas Hitler, as the German supreme commander, discarded it.

"The numerical superiority of the Russian Army, estimated at the outset at 155 divisions to Germany's 121, was far outweighed by the better German training ... How was it, then, that the Russian Army ... was able in the second World War to hold and systematically to destroy 2/3rds of the German Army? Two reasons ... The first is that the Russians copied the German Schlieffen tactical doctrine [mobile defenses to lure in and then entrap and annihilate invading forces]; and the second is that they practised it, whereas Hitler as the German Supreme commander, discarded it. ... Hitler had other ideas. The defeat of France had seemed to easy that he had appointed himself supreme commander of the German armed forces for the attack on Russia. ... he ordered a frontal assault. ... 'The essential', in the words of Schlieffen's Plan, 'is a strong outflanking wing; with its help all the battles will be won, and by its action every enemy attempt at resistance will be broken.'

"Hitler, however, cared for none of these things. Hungry only for quick victories he hoped to find them by continuing the advance in three divergent directions - towards Leningrad, Moscow, and Kiev - with a diversion from the central sector to encircle a Russian force in the Kiev area. So it was that the German armies were driven frontally ... until they found themselves attempting to defend a 1,500 mile battlefiend from Leningrad to the Caucasus, with neither the manpower, weapon power, nor supply columns to maintain it. ... The German tether ended in Hitler's frontal assault on Stalingrad. ... as a tactical operation, Hitler's onslaught was a frontal assault throughout. Like the younger Moltke in 1914, he disregarded Schlieffen's tactical doctrine, while the Russians roughly followed it. ... The Russian zones of resistance, prepared before the War, were based on the German elastic or mobile defence - the invitation to walk on into death traps ... The atomic field gun, self propelled, is stated to fire a shell to a range of 15,000 yards ... neither the United States nor Russia are expected to react with a considerable more powerful shell and a consequent race to the hydrogen bomb, provided the bursts are confined to the tactical area of the battlefield proper and avoid populated districts [ref: Raymond Garhoff, *Soviet Strategy in the Nuclear Age*, Praeger, NY 1958] ...

"Schlieffen's tactical doctrine swallows these new weapons in its stride. The highly mobile atomic field gun, a long distance support weapon, will ensure great economy of force; it will almost eliminate the need for heavy and medium tanks, breakup distant enemy concentrations, and deny entry into weak sectors of the defence. ... 'Victory', to quote a leading British military authority, 'will go to the side which is soonest ready with the greater nuclear destructive power' [Field Marshall Monty, *The Panorama of War in a Nuclear Age* RUSI Journal, November 1956]. ... Why should a Russian leader embark on the hazards of frontal aggression and the risk of total nuclear war ... the task of britain's armed forces is neither to annihilate the Russian people not to destroy the Russian Army. It has to be prepared to defend in limited wars vital areas and interests ... any defence force will have to be prepared to meet and to use small tactical nuclear weapons, such as the atomic field gun, and to hold them ready in reserve. ... The organization of small, hard-hitting, balanced fighting formations for an Expeditionary force will then become practicable ... No need to go back to Hannibal and 216BC to find a parallel for encirclements in pockets of firepower. It may be found in the battles in the Crimea in 1854 AD ... At the battle of the Alma, for example ... 'It seemed impossible for that unimpressive British line ... to withstand the formidable mass of Russian infantry, but an astonishing phenomenon took place. The massive columns came on ... and then, suddenly, the slender line had encircled them ... Packed shoulder to shoulder, the Russians in their dense columns could not aim ... the survivors turned and fled.' [Quoted from C. Woodham Smith, *The reason why*, Constable, London, 1953, p193.] Schlieffen's ... plan appears to be the clearest link in existence between the battle doctrines before and after the two World Wars." [This paper has the endnote: *A shortened version of these three articles, written after a study of the original Schlieffen Papers on their way through London from Washington back to Germany, was sent to the War Office in July, 1956, as a confidential document.*]

"In 1978, President Jimmy Carter issued Presidential Directive/NSC-41 (PD-41) entitled, *US Civil Defense Policy* (Secret ... PD-41 specifically referred to the potential for crisis relocation of urban populations [evacuation of nuclear hazard areas] and called on civil defense as an element of the strategic balance to, '... provide some increase in the number of surviving population and for greater continuity of government, should deterrence and escalation control fail...'." - Keith B. Payne, *The Great American Gamble*, National Institute Press, 2008, p87.

Even if some fallout radiation is released, simple civil defense precautions such as sheltering in the downwind area while it quickly decays, evacuation and decontamination, prevents casualties. **The very high fallout casualty rates "predicted" for megaton surface bursts by US Defense Secretary Schlesinger in the 1974 US Congressional Hearings *Nuclear Weapons and Foreign Policy*** resulted from *assuming 45% of the population had only a protection factor of 3 against gamma radiation, whereas the minimal fallout protection factor Kennedy specified back in 1961 was 40*: for details, please see footnote 3 on page 5 of Bruce W. Bennett's RAND Corp report R-2218-AF, *Fatality Uncertainties in*

Limited Nuclear War, i.e., Schlesinger assumed 45% of people had a PF of 3, 20% had 14, 10% had 50, and 25% had 100; nobody had more than 100. *Thus, 45% of people in the 1000 rad hotspot covering about 2000 square miles per fission megaton for 15 knot winds in the SEER II fallout model, are simply assumed to be likely fatalities due to this very high 1000/3 = 333 rads dose, entirely due to an assumed lack of protection!* President Kennedy's minimum civil defense protection factor of 40 in simple expedient fallout shelters tested by Cresson Kearny of Oak Ridge National Laboratory in reports such as *Nuclear War Survival Skills,* eliminates such fallout casualties, because 1000/40 = 25 rads! In addition, the "SEER II" type fallout models used in books like Glasstone and Dolan's *Effects of Nuclear Weapons* and the 1979 OTA report *The Effects of Nuclear War* **are fake, based on nuclear test measurements, e.g. weapon test report WT-1316 Table 2.11 shows that the maximum fallout dose hotspot of 1,000 rads over two days following the 87% fission 5 megaton Tewa burst covered 520 square miles, rather than the ~10,000 square miles given for that yield by officially accepted fallout computer models**, which were falsely "validated" using the fake Castle-Koon fallout pattern map in DASA-1251 and its source report WT-915, which has a massively exaggerated distance scale of Bikini Atoll, causing exaggerated fallout areas (as we pointed out here at nukegate.org back in 2006, and before that in the unpubished 1990 book, *Nuclear Weapons Effects Theory*). Note also that the fallout areas versus contamination intensities are correlated for both water surface and land surface tests of Redwing in Fig 3.17 of WT-1344, debunking Glasstone and Dolan's claims that downwind fallout areas from water surface bursts in shallow water are not representative of land surface bursts; this has a massive impact because it massively increases the quantity of relevant data on fallout from land bursts, invalidating propaganda models.

Declassified data on fallout areas for real tactical nuclear weapons surface bursts of 0.018 - 1.65 kt yields are listed here (table from weapon test report WT-2266) and are trivial; they would not extend radiation sickness beyond the nuclear battlefield close to ground zero. Also, the Small Boy nuclear test over very fine silt at Frenchman Flats, Nevada, a dried lake bed, produced fused fallout particles with a totally different distribution than the unaltered ground zero soil, invalidating Glasstone's DELFIC/SEER II fallout model's basic assumption that the particle size distribution of soil entering the fireball is the same as the resultant fallout particle size distribution (the reality is, as for Trinitite, very small particles of melted soil stick together, and thus agglomerate when they collide, therefore changing the particle size distribution). *To give Glasstone his due, he did point out the Table 9.68 of the 1957 Effects of Nuclear Weapons (based on scaled up 1951 Sugar surface burst fallout data) that even for a 20 kt tactical surface burst in 15 mph winds, 1,000 r/hr dose rate at 1 hour after burst only extends 2.3 miles downwind, and Glasstone also in Table 9.37 showed that a basement or shelter with 3 feet earth shielding reduces this fallout radiation by a factor of 1,000 or more, i.e. from 1000 r/hr to 1 r/hr (or less)!* Note also that fallout report **USNRDL-TR-410 shows in Table 2 on page 40 that the maximum actually measured fallout dose rate at 1 hour after the 1.2 kiloton Sugar surface burst in Nevada is 540 r/hr at 900 feet downwind (the 500 r/hr at 1 hour contour covered an area of only 0.05 square mile, while 100 r/hr covered 0.55 square mile).** British fallout patterns from Operation Buffalo (see **J. J. Rae, AWRE-T49/57, Operation Buffalo *Radiation Survey of Ground Deposited Radioactivity,* which we uploaded to internet archive, linked HERE) debunks Glasstone and Dolan's fallout patterns by proving that the downwind fallout has a "hotspot" far downwind, even at low kiloton yields (not merely for megaton tests in the Pacific as Glasstone and Dolan 1977 claim), where radioactivity is concentrated.**

Please note that the 1956 UK-Australian air and surface burst nuclear tests of Operation Buffalo were attended by American nuclear testing experts Dr Frank H. Shelton and Dr Alvin C. Graves, by invitation in response to their invitation to Dr William G. Penney to attend the American Operation Teapot Nevada tests the previous year, 1955, the first American tests attended by the British since Crossroads at Bikini in 1946. Our key point about Buffalo at Maralinga is geological: the Maralinga soil consists of a thin silicate sand layer like Yucca Flats at the Nevada test site, *but below that very thin surface sand layer, the bedrock at Maralinga is entirely calcium carbonate, like the coral at Bikini and Eniwetok.* Therefore, the Buffalo *tower shots and air burst which entrained silicate sand top soil at Maralinga produced fallout identical to Nevada tests, but the "Buffalo Round 2" surface burst at Maralinga cratered calcium carbonate,* chemically identical to the Mike, Bravo and Zuni multi-megaton yield American nuclear surface bursts at Eniwetok and Bikini. So the British data at one location permits proper checks for low yield surface and low air bursts on American data for the "hotspots" for both Nevada and Pacific surface bursts, proof testing fallout theory. Furthermore, the 1.4kt surface burst "Buffalo-Round 2" was fired in a 90 degrees windshear which separated the mushroom stem fallout (which was blown North by low altitude winds) from the mushroom head fallout (which was blown East by higher altitude winds), permitting the partition of activity in those different portions of the cloud to be confirmed by simply integrating the dose rates over area for respective portions of the fallout pattern. The vital point here is, in the downwind "hotspot" or very intense fallout area, you can shelter until the dose rate quickly decays to a level where evacuation is feasible, then you can evacuate. All the usual left-wing propaganda based claims that fallout "can't be predicted" because of the Bravo nuclear test disaster are fake, and were so even in the 1950s, when there were no weather computers, as we'll prove below.

AD A995132

WT-1344 (EX)
EXTRACTED VERSION

OPERATION REDWING

Technical Summary of Military Effects, Programs 1-9

PAGE 6:

The documentation of the fallout distribution by various coordinated projects was successfully accomplished. Evaluation of laboratory data yielded the necessary conversion factors to correct any quantitative errors in the measured patterns. Final data analysis included corrections for background radiation. The combining of the corrected fallout distribution with data from incremental and total samplers and with reduced data from the rocket flights through the mushroom yielded sufficient information for the construction of a detailed model of the initial conditions for fallout-prediction methods.

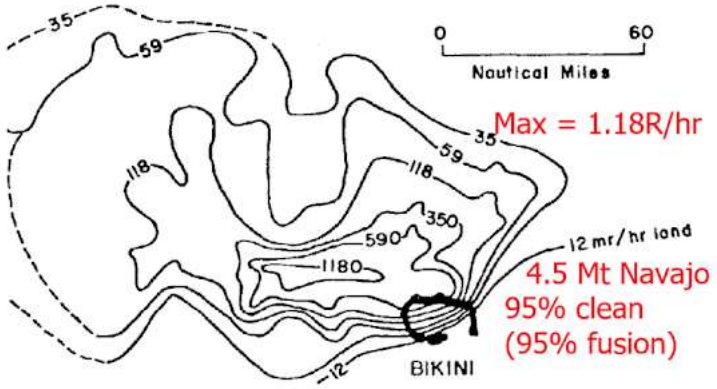
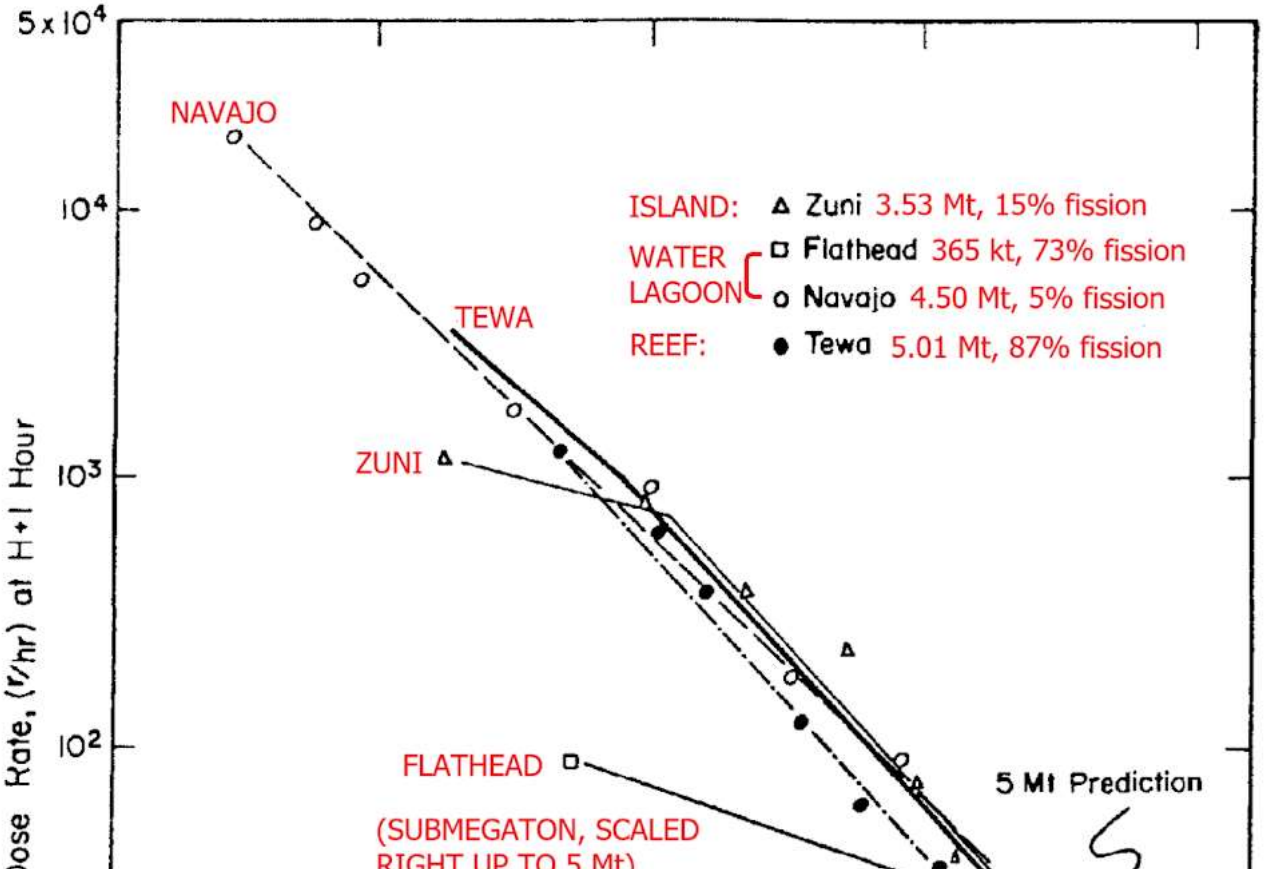


Figure 3.11 H+1 hour contour locations decayed to D+1 day at 3 feet above surface, Shot Navajo.

Operation Redwing correlation of fallout pattern radiation versus area for different surface burst conditions:



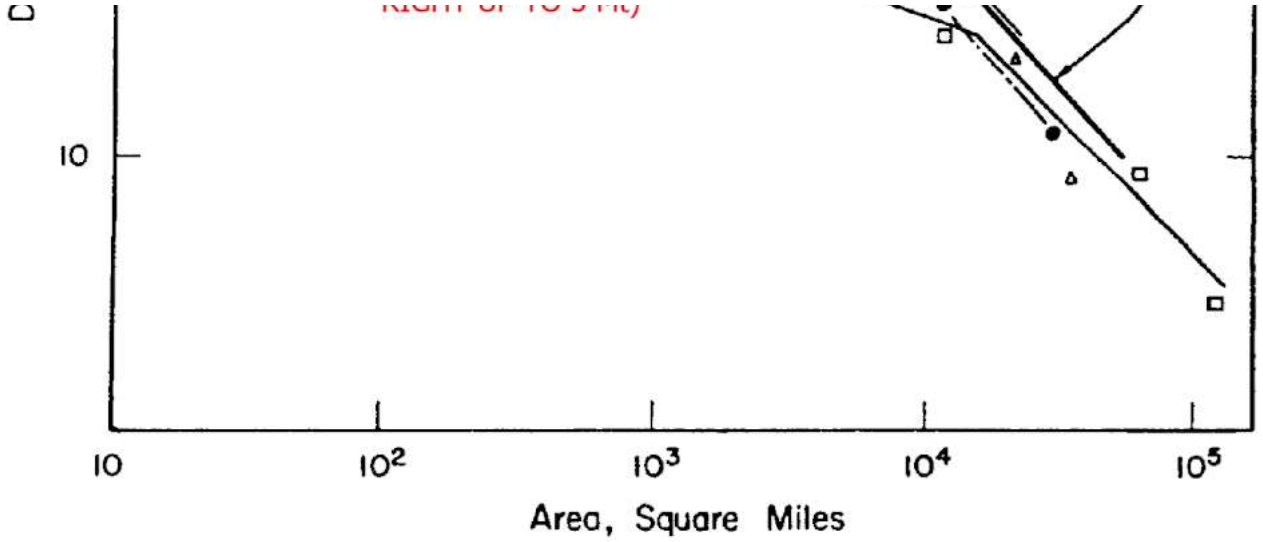


Figure 3.17 Areas of dose rate contours for Redwing shots normalized to 5-Mt 100-percent fission yield.

ABOVE: **extract from nuclear weapon test report WT-1344 summarizing some of the key so-called "controversial" Operation Redwing fallout raw data, ADA995132 in highest available quality (original declassified version was unreadably bad scan of a photocopy of a declassified photocopy). The detailed analysis of fallout in this diagram is not "trivia"; it explains how a *false* analysis of the Na24 content of fallout from water surface bursts (and to a lesser extent land island and reef bursts) of high yield thermonuclear weapons at Bikini Atoll was fouled up and obfuscated by WT-1344. Dr Benson L. Tucker of RAND Corp did a full detailed analysis of neutron activation products (from bomb and the local environment, due to neutron capture) in fallout, starting with the 1952 Ivy-Mike test, and obtained evidence that this effect was not properly accounted for, in the naive assumptions made in the WT-1318 fallout report. The fact is, the land and shallow reef surface bursts (Zuni and Tewa) and water surface bursts (Navajo and Flathead) at Operation Redwing gave similar fallout distributions when the dose rates are normalized to areas covered for a standard total and fission yield, proving that the difference claimed by Glasstone in *The Effects of Nuclear Weapons* is fake news. In reality, we have extensive fallout data for all yields, because water surface bursts do NOT produce substantially different fallout patterns to land surface bursts, contrary to Glasstone. This has immense implications for understanding the fallout hazards. Also, if you go up in an aircraft to 50,000 feet or so and throw the contents of a bag of flour out of the window, you don't expect the "hotspot" concentration to occur at "ground zero" below you. If you are sensible, you'd predict the maximum hotspot to occur DOWNWIND at a distance like vt, where v is wind velocity and t is time taken for the average size of the flour particles to reach the ground. Duh. This explains very well the "mystery" of why there are "hotspots" downwind. Note that this massively DECREASES the danger, because the time taken for the particles to arrive on the ground in the downwind hotspot, allows a lot of DECAY to occur before fallout hits people! Duh! Glasstone's fallout prediction instead shows a maximum fallout at ground zero, fake news! Duh. Case closed!**

Many continuing "authoritative" myths about fallout data are perpetuated by Glasstone's poor treatment of the subject, despite the manuscripts for the various editions being "reviewed" by various experts, e.g. as we pointed out in 1990 in *Nuclear Weapons Effects Theory* and later in blog posts here over a decade ago, **Dr Kellogg of RAND Corp in the May-June 1957 U.S. Congressional Hearings on *The Nature of Radioactive Fallout and Its Effects on Man* at pages 104-112** lays to rest the myth that the fallout from 1956 Operation Redwing Bikini lagoon surface burst Navajo and Flathead produced significantly less local fallout that land bursts Zuni and Tewa: the October 1956 secret classified interim test report ITR-1354, *Fallout Studies in Operation Redwing,* in Appendix E used the wrong conversion factor for radiation to fraction of bomb per unit area, to deduce that the water surface bursts produced under half the local fallout of land bursts. That error was pointed out and corrected by Dr Benson L. Tucker of RAND Corp in his 9 July 1957 secret classified report *Fraction of Redwing Activity In Local Fallout*, which shows that the difference is trivial, 85% for land surface bursts versus about 68% for water surface bursts! Despite this, Glasstone and Dolan continued to quote the false results from the 1956 report even in the 1977 edition of *The effects of nuclear weapons*. Similarly, Dr Kellogg also pointed out in his published 1957 testimony that RAND Corp physicists Stanley Greenfield and Ralph Rapp in their January 1957 secret report RM-1855, *Fallout Computations and Castle-Bravo - A Case Study* had solved the Bravo fallout pattern controversy, using the detailed wind data analysis (see **AFSWP-1069**) in the **secret AFSWP report 895 on January 1955 *Fallout Symposium* (which we have placed online, HERE)**: "**Another example of a fallout pattern which changed its direction during the later stages of the fallout is the March 1, 1954, Castle shot on the Bikini atoll, referred to earlier. In this case, the fallout apparently started out in a direction east-northeast, but a continued veering of the wind caused it to curve more to the east and east-southeast, until one side of it lay across some neighboring atolls. A study of this event by Rand in which the fallout was computed with the shot-time wind alone, and then again with the variable (true) wind, shows clearly how the pattern must have curved as it progressed**."

Greenfield and Rapp's RAND study RM-1855 is still secret, yet is the only full analysis of the Bravo fallout using the complete Marshall Islands wind system data. The DASA-1251 fallout patterns compendium claims the January 1955 AFSWP895/WT915 published NRDL fallout patern for Bravo uses a complete fallout analysis, but this is incorrect, since it just uses an ad hoc average of a few balloon holographs-derived wind data, with no full weather system analysis of the true time variation in winds in time and space, taking account of the detailed weather charts for the Marshall Islands published in secret report AFSWP-895, in January 1955 (the fake NRDL Bravo fallout reconstruction, which puts far too much activity in the 3,000 R/hr hotspot as proved by Redwing data in 1956, was included in that January 1955 AFSWP-895 symposium, and does not use the wind data presented for the first time at the symposium!). DASA-1251 also makes the mistake of reproducing all of the fallout patterns from Schuert and others at NRDL (published in AFSWP-895 and WT-915) using fake Bikini Atoll distance scales for close-in fallout from Castle in AFSWP895 and also WT915! Schuert took short cuts, so the NRDL Castle data is unreliable. Even his otherwise excellent unclassified fallout prediction report USNRDL-TR-139 on Redwing fallout has incorrect fallout pattern scales, e.g. the Tewa fallout distance scale shown to

Vital analysis of fallout comparison between water and land surface bursts 1956:

WT-1344: Redwing effects summary

TABLE 3.2 PERCENT OF FISSION FRAGMENTS [LOCAL, 24 hour FALLOUT %]

All numbers in percent.

Shot	Device Down a	b	c	Na^{24} d	Na^{24} e	If Collimated, Fall-out Product Down c/d	c/e
Flathead	29	15	60	17	7.8	50	55
Navajo	50	36/59	144/236	64	37	52/85	91/149
Tewa	28	24	96	17	4.5	80	91
Zuni	48	47	188	50	33	94	125

a These estimates of the percent down were obtained in an unusual manner (WT-1318).

b Summation within contours of WT-1318 gives percentages as listed in this column.

c Detector readings of WT-1318 corrected for collimation.

d The contribution of Na^{24} (Reference 3). = ACCURATE DATA!

e Calculations of Project 2.63 as to the contribution of Na^{24}.

c/d WT-1318 collimated readings modified by subtracting sodium contribution of Column d, to give the percent of fission products actually accounted for. = ACCURATE DATA (DR B. L. Tucker)

c/e WT-1318 collimated reading modified by subtracting sodium contribution of Column e, to give the percent of fission products actually accounted for. = FAKE NEWS, UNDERESTIMATES Na24

Unreliable data

Good data (from Tucker's analysis of Na24 in fallout)

CRAP!!

TABLE 3.3 SUMMARY OF AREAL EXTENT OF FALLOUT (MEASURED LAND EQUIVALENT RADIATION AREAS)

H + 1 hour dose rate, r/hr	Area Within Contour Lines, mi^2 Zuni	Flathead	Navajo	Tewa
1,000	—	—	25	450
500	—	—	55	1,050
300	—	—	80	1,550
100	750	—	310	3,500
50	1,720	—	950	5,850
30	4,000	90	1,350	11,500
10	7,600	2,100	3,300	>29,000
5	10,800*	7,600	8,250*	—
3	>16,500	10,800	11,600*	—
1	>28,000	>20,000	—	—

Island Lagoon Lagoon Reef

IMAGINARY most 1 hour dose rates are fictional!

Clean vs. Dirty bomb:

Allows for arrival time!

Two-day accumulated dose roentgens				
1,000	—	—	20	520
500	—	—	30	1,050
300	—	—	45	1,500
100	1,450	75	350	3,000
50	2,750	425	770	3,900
30	4,300	800	1,300	5,450
10	7,900	2,700	2,150	13,600
5	11,400*	5,400	3,100	>22,000
3	>15,700	9,500	4,650*	—
1	>26,000	>18,000	11,700*	—
Total Yield, Mt	3.53	0.365	4.50	5.01
Percent Fission Yield (FRACTION)	0.15	0.73	0.05	0.87

KEY DATA:

*=extrapolations



Source: ADA995132 page 147, Tables 3.2 and 3.3. This is vital data debunking whole basis of Glasstone's fallout analysis in ENW!

Ref 3 (RELIABLE Na24 analysis, unlike WT-1318!): Dr Benson L. Tucker; "Fraction of Redwing Radioactivity in Local Fallout"; AFSWP-1053 (RAND Corp RM-1932), 9 July 1957

be half that in WT1317! It is totally unreliable and causes delusional fake news. **See also the secret April 1957 RAND Fallout Symposium (which we placed online HERE),** and Dr Rapp's RAND report **RM-2334 (AD0337920)** ***Summary report on RAND work on AFSWP fallout project*** (finally declassified in 2006, linked HERE) which demonstrates how Operation Redwing fallout data confirms their Bravo analysis with a "hotspot" downwind centred near Rongelap Atoll and the Lucky Dragon tuna trawler (which was in the peak fallout spot just north of Rongelap at fallout arrival time), and on page 8 (Fig 1) shows how the NRDL effective fallout activity-size distribution used by them for surface bursts (based on a shallow *underground* test in 1951!) *assumes falsely that 8% of activity on particles is on particles of over 1mm radius (2mm diameter), contrasted to well under 0.01% for all actual surface burst nuclear test data!* This 800-factor exaggeration in the fallout activity on >2mm diameter fallout "hotspot mega" particles, together with errors on Bikini Atoll fallout map distance scales, is a key reason for severe discrepancies between NRDL fallout patterns and reality. Figure 16 in Dr Rapp's RM-2334 report shows that for a 3.5 megaton surface burst (the Redwing-Zuni test of 1956, for which the spatial distribution of radioactivity in the cloud is known, due to extensive measurements using extensive volleys of rockets fired through different parts of the mushroom at 7 and 15 minutes after detonation, containing radiation survey meters and radio telemetry of data), a downwind hotspot is predicted for 35-70 nautical miles downwind for 20 knots wind, as observed at Operation Redwing in 1956.

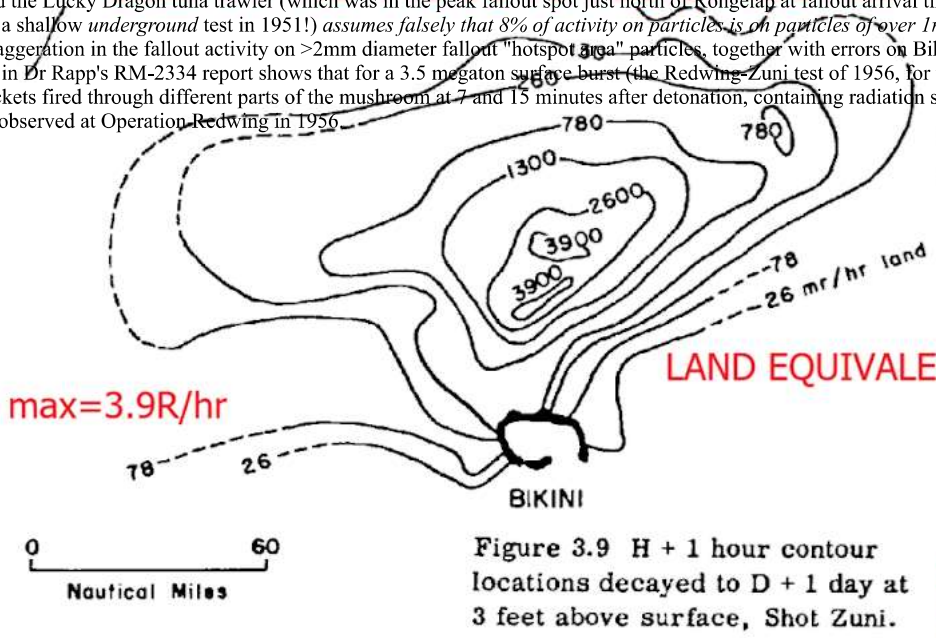
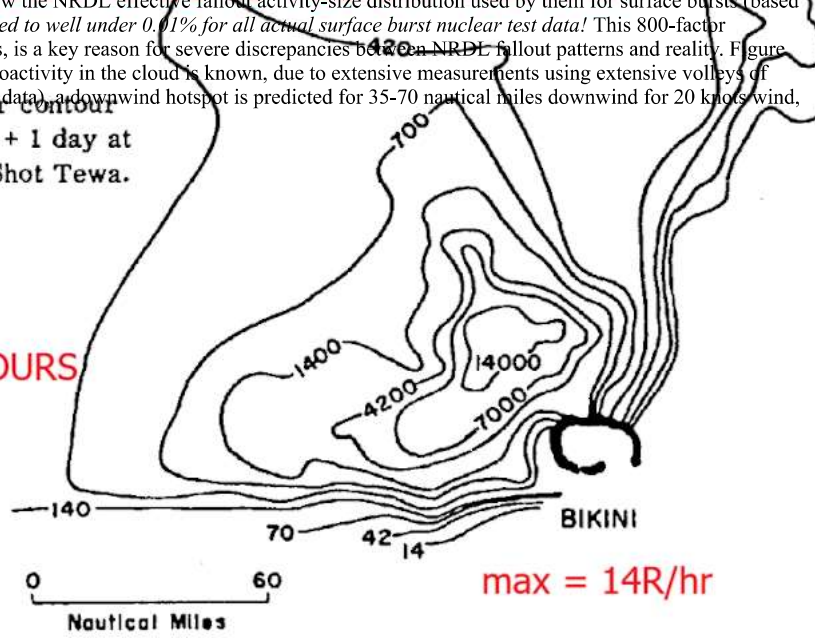


Figure 3.9 H + 1 hour contour locations decayed to D + 1 day at 3 feet above surface, Shot Zuni.

Figure 3.10 H + 1 hour contour locations decayed to D + 1 day at 3 feet above surface, Shot Tewa.



max=3.9R/hr

LAND EQUIVALENT mR/hr at 24 HOURS

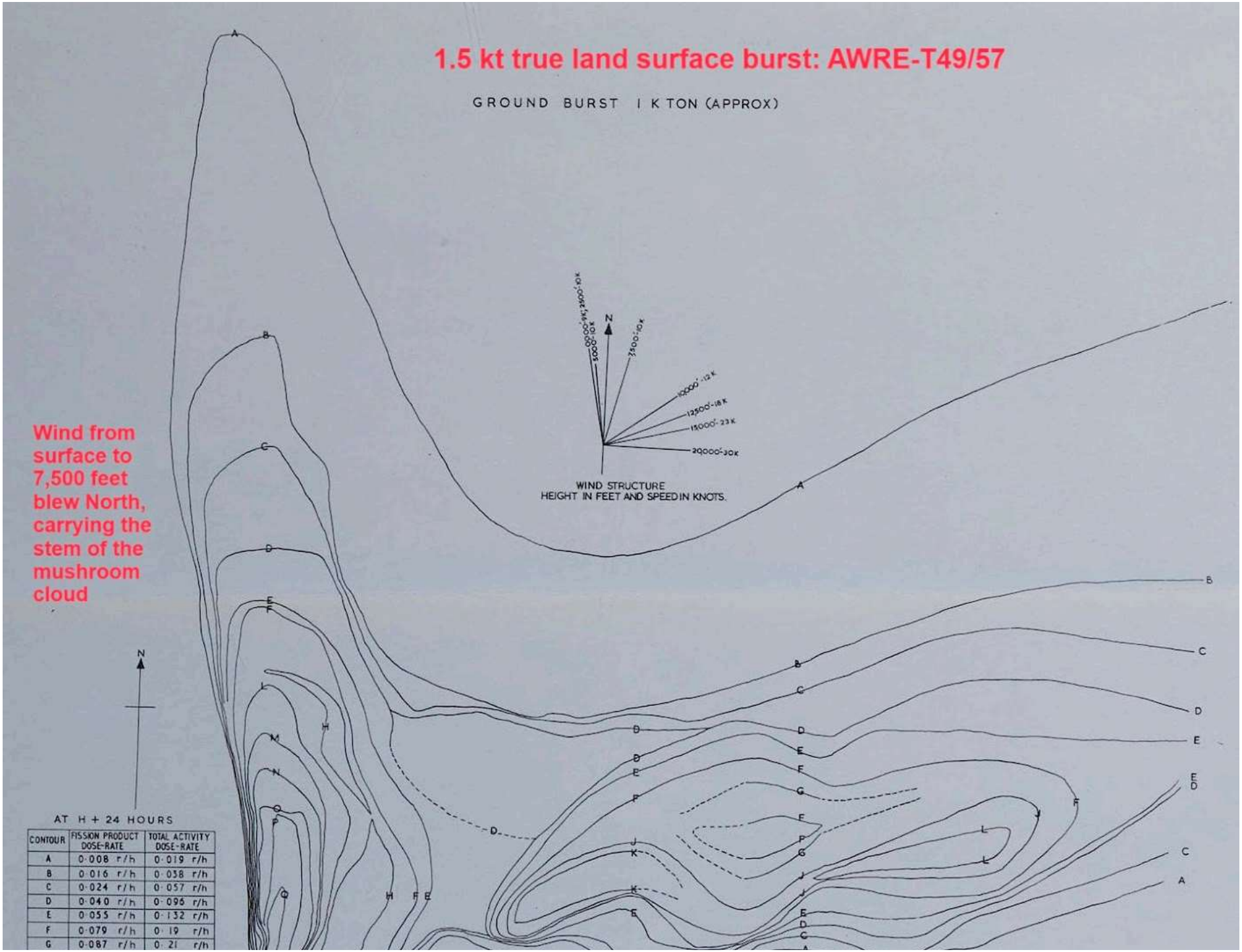
ENIWETOK

SOURCE: report WT-1344.

max = 14R/hr

IRV CLEARED MF 8500 FOSDIC ZOOM DURAY 5.01MF 396 FUSION TEWA

1.5 kt true land surface burst: AWRE-T49/57



CONTOUR	FISSION PRODUCT DOSE-RATE	TOTAL ACTIVITY DOSE-RATE
A	0·008 r/h	0·019 r/h
B	0·016 r/h	0·038 r/h
C	0·024 r/h	0·057 r/h
D	0·040 r/h	0·096 r/h
E	0·055 r/h	0·132 r/h
F	0·079 r/h	0·19 r/h
G	0·087 r/h	0·21 r/h

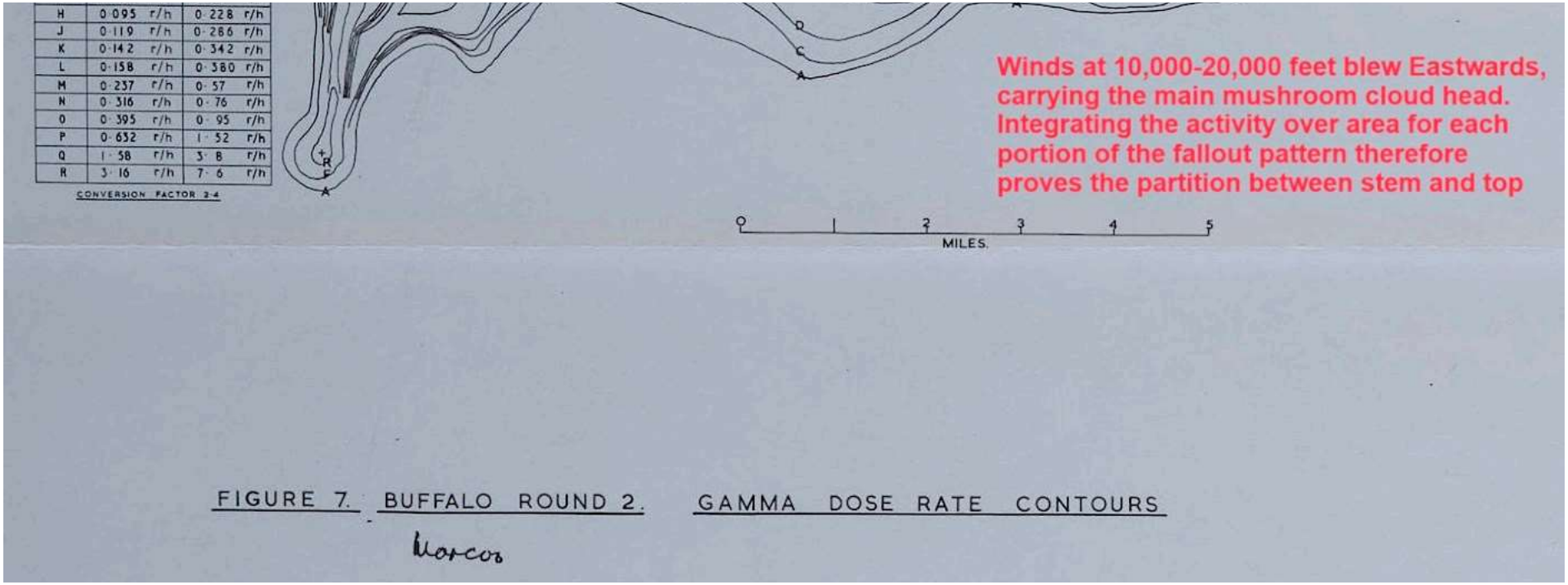
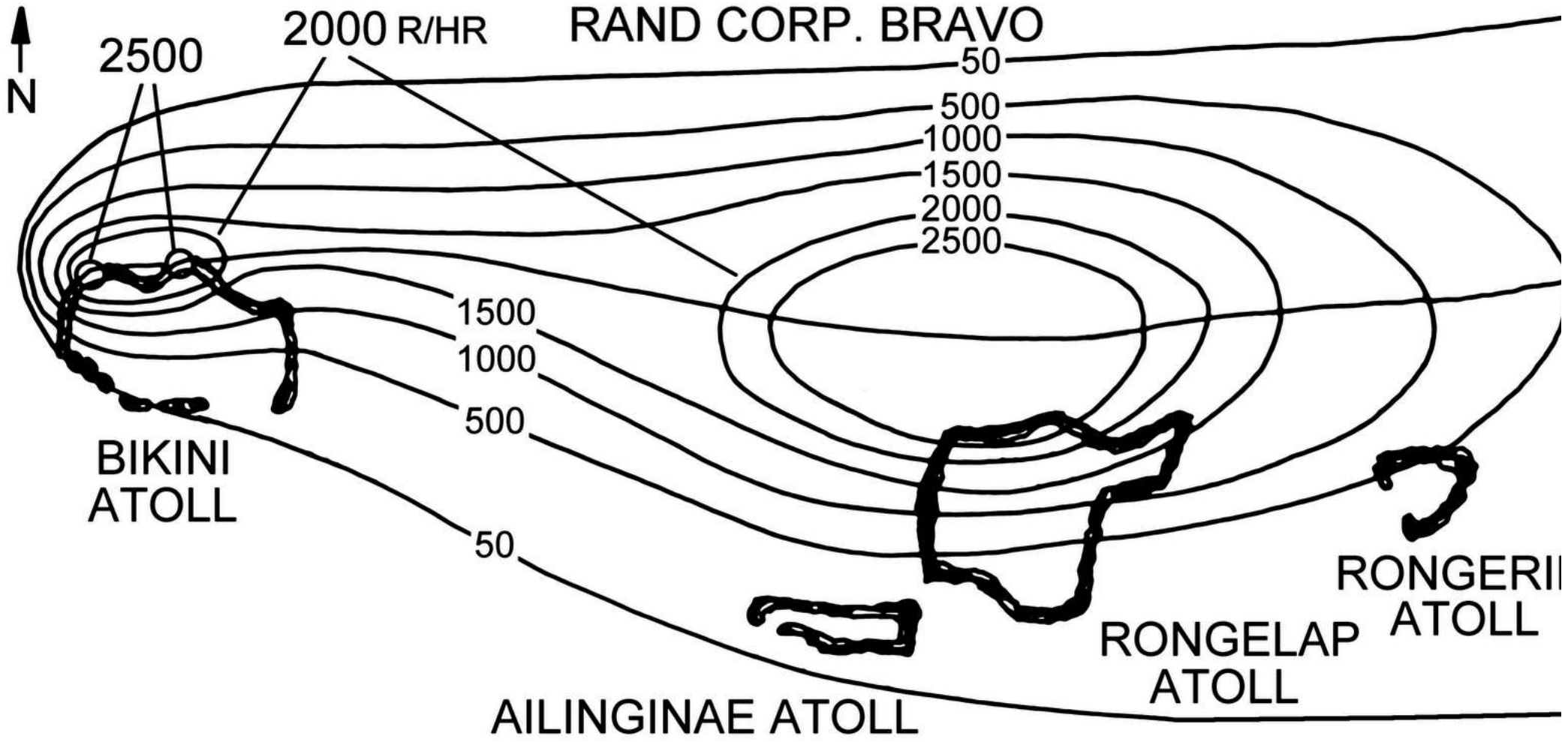
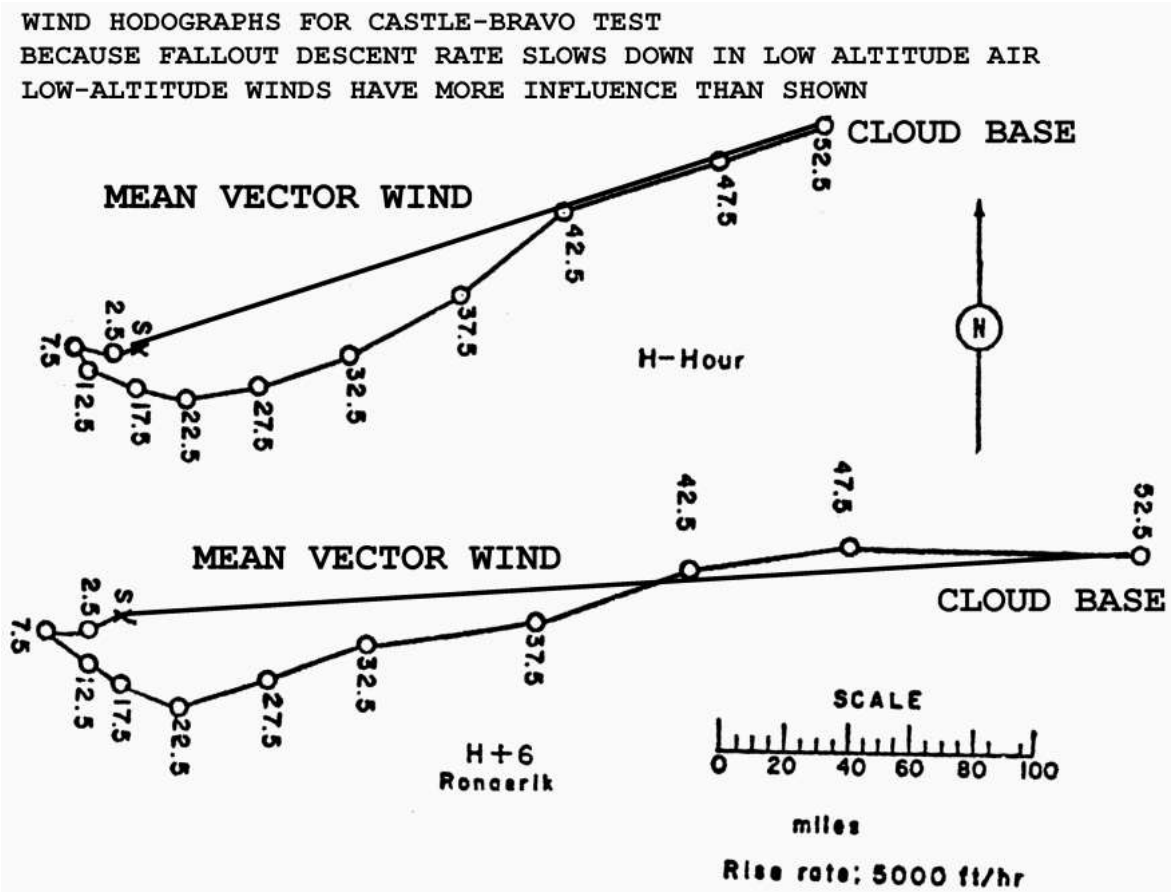
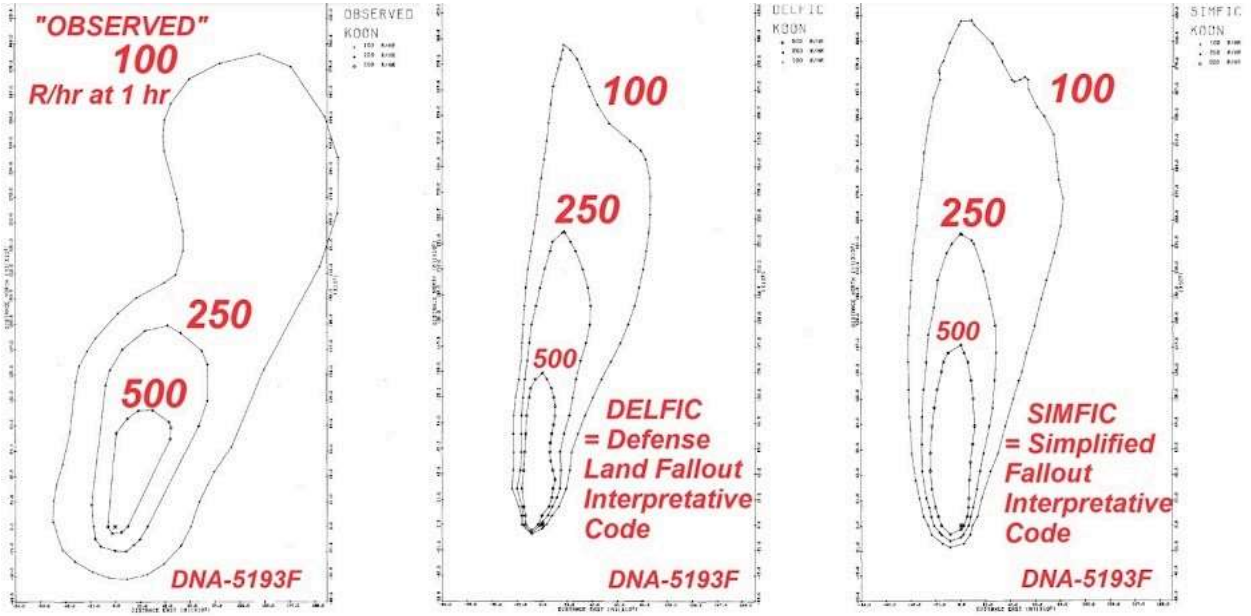


FIGURE 7. BUFFALO ROUND 2. GAMMA DOSE RATE CONTOURS

Marcos


N
2500
2000 R/HR
RAND CORP. BRAVO
50
500
1000
1500
2000
2500
1500
1000
500
50
BIKINI
ATOLL
RONGERI
ATOLL
RONGELAP
ATOLL
AILINGINAE ATOLL


WIND HODOGRAPHS FOR CASTLE-BRAVO TEST
BECAUSE FALLOUT DESCENT RATE SLOWS DOWN IN LOW ALTITUDE AIR
LOW-ALTITUDE WINDS HAVE MORE INFLUENCE THAN SHOWN
CLOUD BASE
MEAN VECTOR WIND
52.5
47.5
42.5
37.5
32.5
27.5
22.5
17.5
12.5
7.5
2.5
SW
H-Hour
N
MEAN VECTOR WIND
CLOUD BASE
H+6
Roncerik
SCALE
0 20 40 60 80 100
miles
Rise rate: 5000 ft/hr



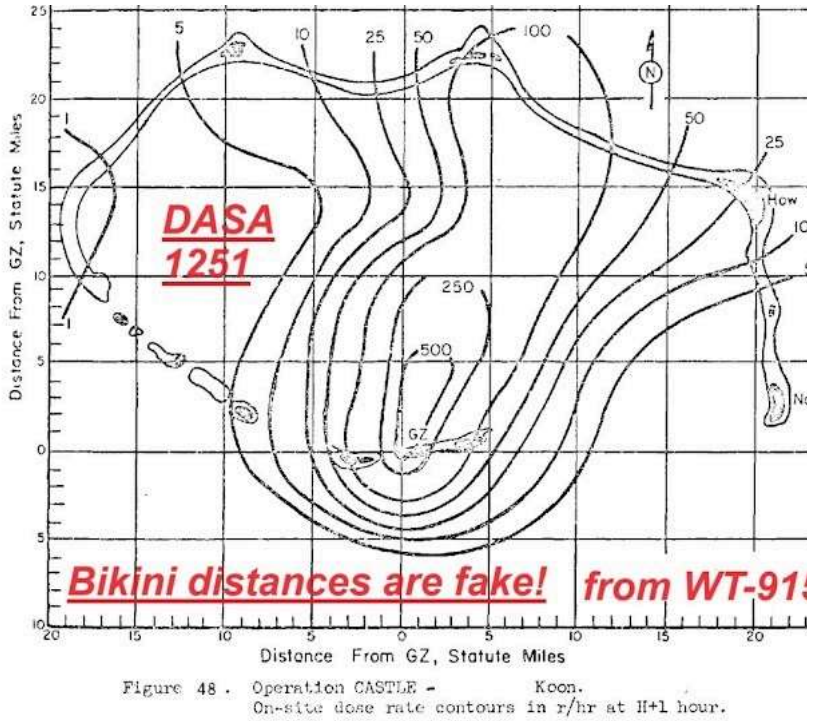


Figure 48. Operation CASTLE - Koon.
On-site dose rate contours in r/hr at H+1 hour.

"... most of the [100 kt fission, 110 kt total yield, Castle-] Koon pattern area was covered by an array of fallout collection stations, so this pattern is probably reasonably accurate."
- Hillyer G. Norment, "SIMFIC: A Simple, Efficient Fallout Model," DNA 5193F, page 29.

Observed/DELFIC/SIMFIC

Contour (Roentgen hr^{-1})	Area (km^2)	Hotline Length (km)
500	32.0/26.0/44.0	10.2/12.5/14.9
250	122/87.3/116	17.3/24.2/24.1
100	550/261/374	41.0/39.5/41.6

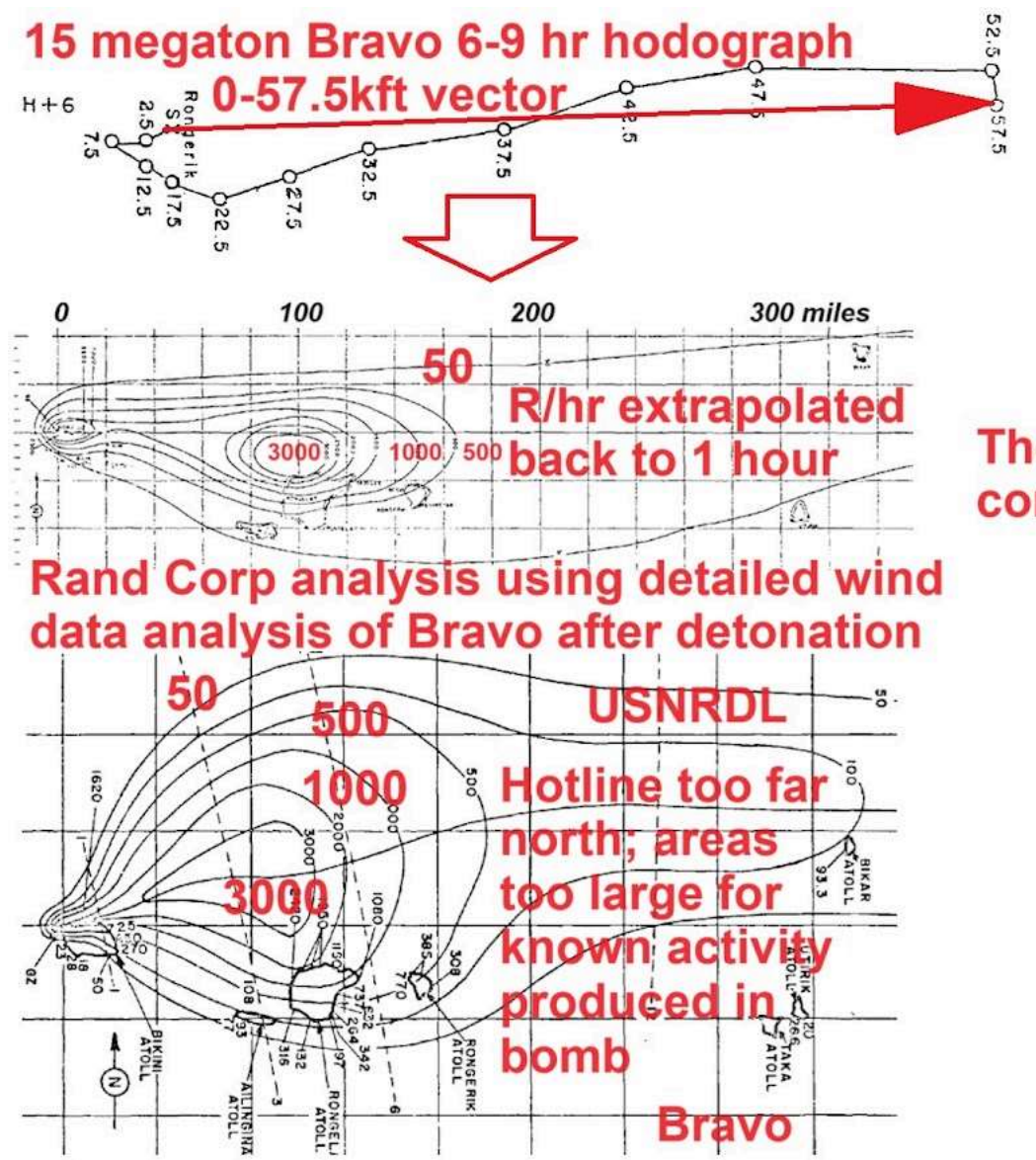
FAKE FAKE

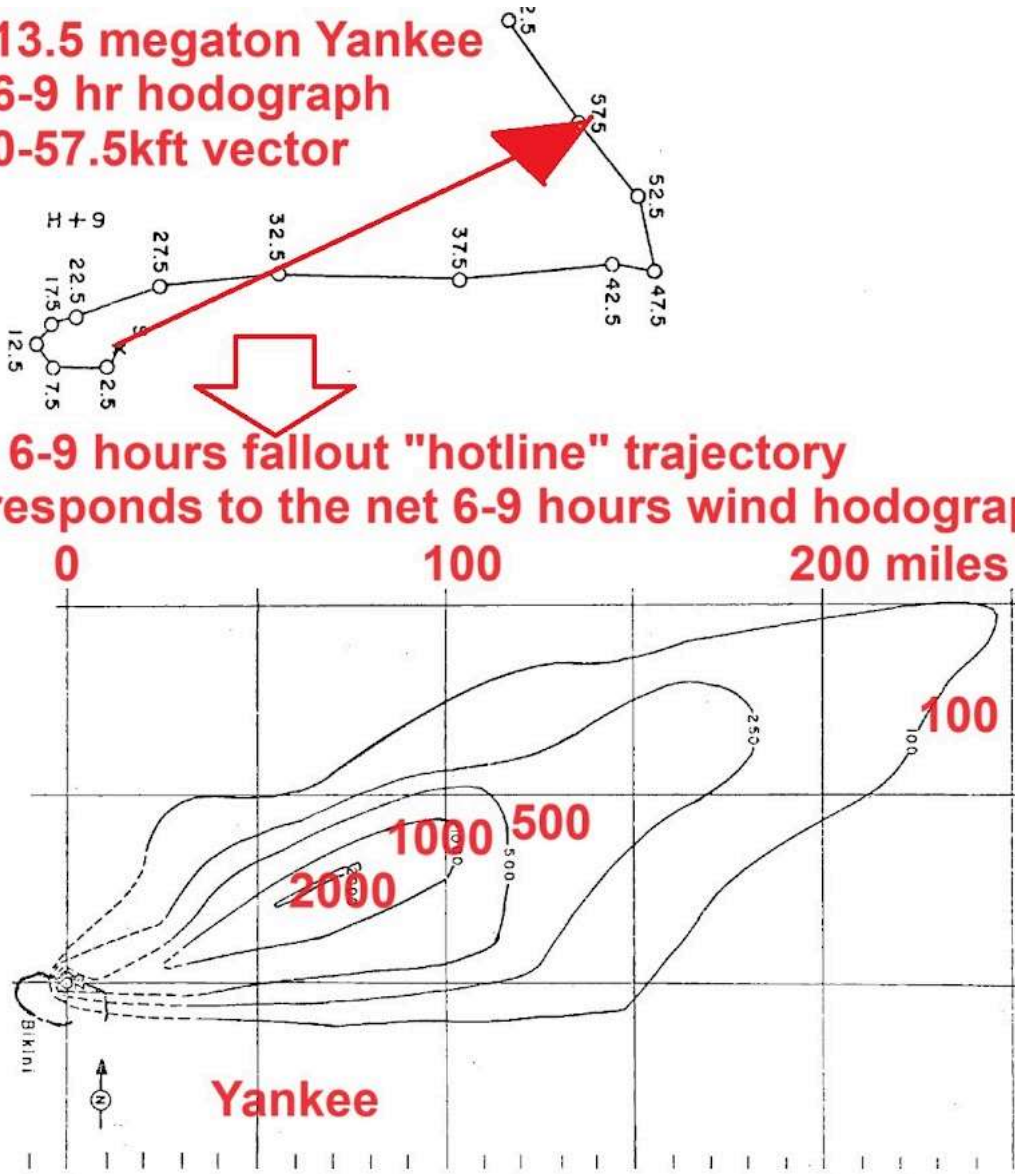
Problem: the "probably reasonably accurate" Castle-Koon "observed" pattern is based on a MASSIVELY exaggerated map scale in Operation Castle fallout report WT-915 (also in DASA1251) Other surface tests were very low yield or else over open ocean!!

Above: FAKE distance scale of Bikini Atoll 110kt surface burst Castle-Koon fallout map: 500 R/hr contour is shown a 6 miles (10 km) long!

The Western side of the Bikini Atoll reef is 165.2 degrees East, while the most eastern island in the Bikini Atoll, Enyu, is at 165.56 degrees East: since there are 60 nautical miles per degree by definition, the width of Bikini Atoll is therefore (165.567-165.2)(60) 22 nautical miles. Since area is proportiona to the square of the distance scale, this constitutes a serious exaggeration in fallou casualty calculations, but is still ignored.

This debunks mainstream fallout models





ABOVE: from our **earlier 2011 analysis of the Bravo fallout mythology (linked here)**. The weather balloon wind hodograph data for 6 and 9 houra after detonation above are not perfect indicators of the fallout trajectory because fallout particles slow down in the higher density more viscous air at lower altitudes, rather than falling at a uniform speed for all altitudes, but they are included to show (a) that this data exists, (b) this data gives an explanation for the hotline direction from the location of maximum activity at the base of the head of the mushroom cloud, and (c) this data can be combined with other data such as general weather charts of the Marshall Islands as first published in the January 1955 Secret classified AFSWP Fallout Symposium (AFTER Schuert had used bad data in the official NRDL reconstruction of Bravo, vastly exaggerating local fallout areas), as RAND did to establish the accurate Bravo fallout pattern. Note also that Glasstone's preferred 1-hour reference dose rates *don't exist in reality in the downwind hotspot from megaton bursts*, and it would be preferable to instead used dose rates at 24 or 48 hours, when the local fallout has actually been deposited!

This crucial question of *how much surface burst bomb activity is carried by fallout particles of more than 2 mm diameter* deserves more focus here than the brief discussion in the previous paragraph. **On July 11, 2013, we placed on internet archive a 568 pages PDF compendium of key extracts of declassified secret and limited distribution documents, debunking major mass-media myths about Hiroshima, Nagasaki, and nuclear weapons tests (linked here), which on**

PDF pages 366-367 includes some data of relevance from the 1.65 kiloton Small Boy surface burst at Flenchman Flats, a dried lake bed in Nevada, with "*virtually no particles above 150 microns (0.15 mm) diameter [down] to a depth of at least 30 feet*" (quote: WT-2215, p24), but NRDL's key 1950s fallout expert **Dr Carl F. Miller (then relocated to Stanford Research Institute) and colleague James D. Sartor's report *Small Boy Shot Fallout* (published in US Atomic Energy Commission fallout symposium CONF-765, PDF linked here) shows that ~1% of the Small Boy fallout gamma dose rate integrated-over-fallout-deposited-area activity was in particles exceeding 2 mm in diameter!** Now this 1% on particles above 2 mm diameter, is 8 times less than figure of 8% used in the 1950s by NRDL assumption, which was based on the 1951 shallow *underground, 17 feet depth 1.2 kiloton Jangle-Uncle test!* (The reason NRDL used Uncle data not Sugar surface burst fallout particle data is a real classic. In 1951 they put out open trays to collect fallout! The *blast wave* then filled the trays with sand, before fallout arrived! So they instead scooped up fallout from the Uncle crater. Duh. They then developed various types of mechanical clock driven "incremental samplers" for later tests, the best of which automatically exposed a series of 8.1cm diameter dishes for 5 minutes to fallout, before replacing the tray and storing the pevious one. However, even with that data, you have the issue that different size distributions are found at different distances from ground zero.)

There are vital physics factors to understand here. First of all, there were *no particles of that >2mm diameter size in the pre-shot Small Boy silt in the crater zone,* so the mechanism which created such large fallout particles in that test, was exactly what occurred for the "Trinitite" in the first nuclear test, Trinity, on July 16, 1945: *fireball heat partially melted the particle surfaces to make them "sticky" (or "pop-corned" small particles into fragments which then melted to form small spheres), some of which then agglomerated into larger-sized particles than the pre-shot crater zone soil!* **You can see this clearly in the photos of Buffalo-1 nuclear fallout at Maralinga in 1956: small spherical particles just "stick" or clump together to form larger particles, looking like a collection of spheres of different sizes glued together!** If these hit a hard surface after falling out, they can break and fragment back into small spheres of varying sizes (causing bafflement of theorists who can't understand why really small particles are deposited so close to ground zero!). Secondly, are there really particles larger than say 1 mm diameter in "fallout"? Or are they really better described as contaminated crater ejecta? The Secret-classified 1957 **Rand Corporation fallout symposium (which we put online, here) in Appendix C by A. D. Anderson (original pagination page 47, but PDF pagination page 54) contains calculations of this by NRDL using their Dynamic fallout model proving clearly that very large particles never make it into the mushroom!** The updraft afterwinds simply aren't strong enough and don't last long enough to raise such large particles right up to very high altitudes, and Anderson states: "*By using the method developed in this article, it was found that all particles greater than 2000 microns [2 mm] in diameter ... fell out and reached the ground within 4 minutes after explosion, within 1 mile of ground zero*." Also he shows, in his Fig. 1 that such large (~2 mm diameter) particles never reach a great altitude; they rise a little, and then start to fall back quickly, because the updraft below the fireball decreases with time, even while smaller particles are still rising because the velocity of the updraft still delivers sufficient force on the very small particles to enable them to overcome gravity and rise! This "dynamical mechanism", where small particles are still rising while larger particles are falling back, *explains why particles conglomerate in the stem: big particles entrained early from the cratering throwout and ejecta are simply falling into the path of the smaller particles that are still rising, thus literally causing impact collisions!* (Don't expect to see any equations for such phenomena in groupthink fallout prediction codes, however. With greatest respect, those guys are still in the stone age of physics.)

The key fact to take away is this: RAND found a small sized fallout particle size distribution that modelled a wide range of nuclear test data consistently. Sure, you will get some big particles in the stem and crater ejecta region, but that's mostly "throwout" *within the region where you would need hard blast shelters to survive (so fallout is no problem there)*. The fact that most of the fallout is concentrated on FAR smaller particles than NRDL claimed, *MASSIVELY REDUCES the civilian collateral damage, by increasing the arrival time of fallout in the maximum hotspot downwind, thereby allowing time for more radioactive decay to occur before the activity arrives, a factor ignored by Glasstone and Dolan!* This key effect with downwind hotspots due to smaller particle size distributions, happens irrespective of wind speed, bcause the vertical fall time of smaller particles is essentially independent of the horizontal wind velocity! QED.

(In the upwind and crater ejecta throwout area, data corrected for the wind speed, weapon total yield and fission yield, and also for true size of Bikini and Eniwetok Atolls in the error-filled maps of atolls in the official secret DASA-1251 compendium for Ivy, Castle and Redwing nuclear tests, shows that the relative 1 hour upwind and crater throwout area dose rates near ground zero are in the ratio of approximately 1:10:100 for water surface bursts, land surface bursts with light cased weapons at Castle and Redwing, and the Ivy-Mike heavy cased 82 ton bomb of 1952, respectively. In other words, the relative fallout dose rate near ground zero or upwind for surface bursts is strongly correlated with the cratering action. The initial partition of energy between x-rays and bomb case shock is strongly dependent on the yield to mass ratio of a nuclear warhead. The relatively heavy case of the Ivy-Mike device in 1952 maximised the initial energy in the case shock which enhanced cratering, throwing large particles into the fireball at early times, mixing fission product radioactivity with the carrier soil efficiently. The later more deliverable lighter cased weapons tested during Castle in 1954 and Redwing in 1956 led to less activity in the "ground zero circle" fallout pattern, including upwind. This is indicated by a change of upwind fallout predictions in Glasstone 1957 and Glasstone 1962/64/77; the Glasstone 1957 data shows heavy upwind fallout from megaton surface bursts based on the scaled 1952 Ivy-Mike data, but the Glasstone 1962/64/77 data shows reduced upwind fallout based on the 1954-6 tests, although some of the 1954 Castle data used was in serious error due to inaccurate scales for shot atolls in the DASA-1251 compendium.)

Anti-nuclear pro-enemy propaganda keeps repeating outdated claims about the 1955 tactical war exercise Carte Blanche, estimated - *by using exaggerated, unshielded effects data from Hiroshima* - to cause civilian "1.7 megadeaths", when in fact the later inventions of the low yield air burst neutron bomb and nuclear earth penetrator eliminate collateral damage, despite lying propaganda from warmongers styling themselves "pacifists" who object to the credible deterrence of the invasions that lead to world wars. **In 1974, in response to secret reports like LA-4467-MS, the US Secretary of Defense tried to explain this in an unclassified way in congressional hearings (LINKED HERE), only to be met by delusional claims from a Senator, that having a credible battlefield deterrent of invasions that eliminates collateral damage will somehow *reduce* - rather than *enable* - the deterrence of World War III! Ref: Pages 19-20 of "US-USSR Strategic Policies", Hearings of the Subcommittee on arms control etc., Committee on Foreign Relations, 93rd Congress, 2nd session on US and Soviet Strategic Doctrine and Military Policies, March 4, 1974.** The popular media and "arms control and disarmament" Russian fronts in the West (not to be confused with the actual Russian policy, which relies on tactical nuclear weapons) continue causing wars and invasions today by opposing the reality of the need for a credible deterrent of invasions. These are the superstitious, paranoid taboo-worshipping luddites of war.

"By the mid-1980s, US officials observed publicly that US strategy sought to avoid targeting population per se. In 1985, for example, Secretary of Defense Caspar Weinberger stated that, '... our strategy consciously does not target population and, in fact has provisions for reducing civilian casualties." - Keith B. Payne, *The Great American Gamble*, National Institute Press, 2008, p84.

"NATO's reigning policy for much of the Cold War, 'Flexible Response,' was formally adopted by NATO's Defense Planning Committee in December 1967 as its 'overall strategic concept'." - Keith B. Payne, *The Great American Gamble*, National Institute Press, 2008, p93.

Edmund O. Stillman, *Civilian Sanctuary and Target Avoidance Policy in Thermonuclear War,* Hudson Institute, published in Annals of the American Academy of Political and Social Science, v392, How Wars End, November 1970, pp116-132 (linked **here**):

"In particular, to spare the enemy population may leave prewar deterrence and intra-war bargaining essentially intact while at the same time mitigating the risk of such a loss of life to the American and allied populations whom it is the business of the government to protect. ... The conventions of war in the Western world have traditionally condemned the murder, enslavement, or torture of conquered and therefore helpless enemy populations, though such acts have regrettably been common enough in history. ... In the late 1950's, growing Soviet retaliatory power, coupled with the development of more sophisticated United States weapon systems, seemed to increase both the perceived irrationality and the immorality of indiscriminate U.S. nuclear attacks on the Soviet homeland, if they were launched because of any issue that fell short of indiscriminate Soviet attacks on the United States or its allies. ... We may conclude that one major utility of a U.S. sanctuary declaration before mounting a first strike is that it provides a more specific guarantee of safety for the enemy population and strongly motivates the enemy to reciprocate. With some assurance of comparative safety for the U.S. civilian population, a U.S. first strike becomes a more feasible policy ... the United States detonates a one-megaton weapon at 500,000 feet above Peking as a demonstration, together with limited nuclear attacks on selected military targets. Simultaneously the United States begins round-the-clock broadcasts and drops leaflets proclaiming that Chinese nuclear facilities and air defenses have been destroyed. "Your leaders have led you to disaster. Nothing stands between the

Issues of Thermonuclear War Termination

By Herman Kahn

Abstract: The possibility of thermonuclear war is here faced and its termination probed, in view of the fact that the missiles for such a war are already in existence and its actuality is therefore not truly "unthinkable." The premise is advanced that the '70's are perhaps the last decade of safety from such a war. Features of a modal model are explored, and six basic and omnipresent threats are discussed. The concept of a war of reciprocal reprisals is presented, as are the cases of ad hoc cease-fire, conditional cease-fire, and the continuation of war with both "rational" and "irrational" outcomes. Ways to hypothecate force in a stable balance-of-terror environment are then examined, and eleven types of war outcome analyzed. The various situations enhancing acceptability of at least an ad hoc cease-fire are listed, and the possible results of taking the recommended design cases seriously are emphasized. A sample mobilization scenario is given in the concluding remarks of warning.

Herman Kahn is director and trustee of the Hudson Institute of Croton-on-Hudson, New York, and was one of its principal founders. Before he left to help found the Institute in 1961, he was for twelve years with the RAND Corporation. He then wrote On Thermonuclear War *(published in 1960). He is the author or co-author of six other books:* Thinking About the Unthinkable *(1962);* On Escalation: Metaphors and Scenarios *(1965); in collaboration with Anthony J. Wiener,* The Year 2000: A Framework for Speculation on the Next Thirty-Three Years *(1967), prepared for the Commission on the Year 2000 of the American Academy of Arts and Sciences;* The Emerging Japanese Superstate: Challenge and Response *(1970); and with members of the Institute staff,* Can We Win in Vietnam? *(1968), and* Why ABM? Policy Issues in the Missile Defense Controversy *(1969).*

Mr. Kahn has lectured at many colleges and universities, and at defense study centers in France, Germany, Holland, Japan, Israel, Norway, and Sweden; and served as consultant to the Gaither Committee on Civil Defense and Strategic Warfare, the United States Air Force Scientific Advisory Board, and the Atomic Energy Commission.

My remarks in this paper are largely drawn from a Hudson Institute report, "War

Civilian Sanctuary and Target Avoidance Policy in Thermonuclear War

By Edmund O. Stillman

Abstract: Examining traditional concepts of civilian warfare, the author finds that civilians have not normally been considered appropriate targets of violence and that civilian productivity and home-front morale are largely irrelevant in conditions of thermonuclear war, in which only forces in being are likely to be used and command and control are separate from the population at large. Under the circumstances, there are thus important moral and practical reasons for adopting "open cities" and sanctuary policies to spare civilians and reduce over-all deaths. Three cases are examined in detail: open cities and sanctuary policies to be enunciated now and at the time of a hypothetical war with the USSR; with respect to the Soviet Union's presumably reluctant Warsaw Pact allies; and finally in the event of a future war, again hypothetical, with mainland China.

Edmund Stillman is director of the European division of the Hudson Institute, locate in Paris. Formerly a foreign service officer serving in the Soviet orbit, and professor o International Politics at the School of Advanced International Studies of the John Hopkins University, he is editor and translator of Bitter Harvest: The Intellectual Re volt Behind the Iron Curtain *(1959); author, with William Pfaff, of* The New Politi *(1961),* The Politics of Hysteria *(1964), and* Power and Impotence: The Failure o America's Foreign Policy *(1966); and author of* The Balkans *(1964) and* The America Heritage History of the '20's and the '30's. *Mr. Stillman is a consultant to the Depar*

Chinese people and annihilation but the self-restraint of the United States." With such attacks, the United States is primarily disarming the enemy capacity to harm the United States and targeting the morale of the Chinese people, in an attempt to unhinge Chinese society."

Herman Kahn, *Issues of Thermonuclear War Termination,* Hudson Institute, published in Annals of the American Academy of Political and Social Science, v392, How Wars End, November 1970, pp133-172:

"... tragedy comes about precisely from the fact that responsible and reasonable people have not thought the problems through ahead of time ...with the result that very narrow and, in many cases, dangerous contingency plans, preparations, deployment, or procurements are made which foreclose the outcome of nuclear crises and war. ... the first contract Hudson Institute received in the 1960s was to write several scenarios for the onset of a nuclear war ... Today the level of analysis has fallen drastically ... thermonuclear war is thought of in terms of a rather simple and straightforward model. This simple model can be described as follows: *First of all, highly apocalyptic expectations ... as the result of accident, miscalculation, blind and/or relentless escalation, or sheer irrationality and/or insanity. Many, if not most, of the weapons will be directed at cities ... each side will try to use up all of its forces as rapidly as possible...* This ... not only has wide currency in popular discussion, it has been exploited by the Soviets for political warfare purposes in the era of the Stockholm Appeal and by some non-Communist peace groups and other critics of American policy. [*On page 135, Kahn displays a graph showing the probability per decade of a NATO nuclear war falling from ~0.4 in 1955 to a minimum of ~0.05 in 1969, before increasing due to détente causing deterioration of credible deterrence.*] ... We can summarize the salient features and effects ...

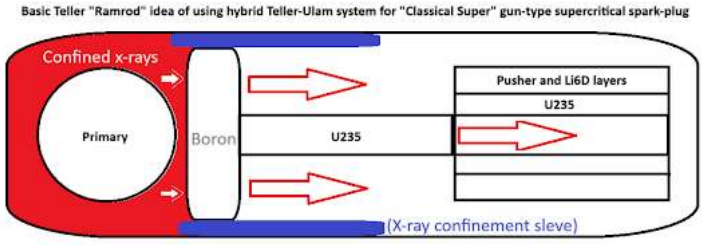
"(1) Apocalyptic expectations seem to make war unthinkable.

"(2) War occurs anyway as a result of accident, miscalculation, blind and/or relentless escalation, or reckless, irrational and/or insane decision makers...

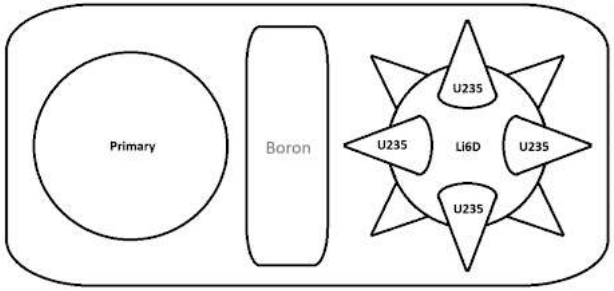
"A nation might also deliberately seek to demonstrate ... that it is prone to miscalculation or will to start the process of escalation. It might attempt to demonstrate a degree of recklessness ... escalation [to] bring about capitulation by the other side. ... The first question to ask is why a nation would want reliable overkill by a factor of ten. ... it might want to deter even the mad. ... As a result a nation might want a safety factor in its deterrence systems so large as to impress even the irrational and irresponsible ... with the need for caution. In short, a satisfactory deterrent would provide an objective basis for making an opponent see that no matter how skillful, ingenious, or optimistic he is, and no matter how negatively he views his alternatives in a desperate crisis, an attack would entail a virtual certainty of no military gain and a possibility of annihilation."

The Annals of the American Academy of Political and Social Science, v392, How Wars End, November 1970, from which the above Hudson Institute research by Stillman and Kahn is quoted, also at page 51 contains a lengthy analysis of the statistics of "war" termination in the 490 years between 1480-1970 by Professor Quincy Wright, "How Hostilities Have Ended: Peace Treaties and Alternatives", finding that just 137 out of the 311 "wars" were ended by peace treaty (unfortunately, Wright's definition of "war" does *not* include invasions by overwhelming force where no war resulted, so his "war" statistics are all skewed towards situations where both sides are well armed, which is a subset of the total problem!), and 174 out of 311 were ended without peace treaty (including 34 between 1945-1970), "over 60 were ended by suppression of domestic or colonial insurrection, or with formal declaration of peace by the victors. ... Many annexations of colonial territory [e.g. Hitler's 1930s invasions up to Poland in September 1939] did not involve hostilities of sufficient magnitude to be included in the list of wars. ... Wars ended inconclusively by discontinuance of hostilities without formal action in over 50 cases." *In other words, the usual "anti-war" rants fron CND's Jeremy Corbyn and comrades that all wars end by peace negotiation so we can end war by jumping straight to "talks", is more BS (just like everything they allege about the effects of nuclear war).* In another paper in that volume (at pages 30-39), "War Prolonged by Misunderstood Signals", Professor George H. Quester argues that far from resolving war, efforts to get to early peace talks were opposed in both World Wars I and II until after mass destruction had worn down the loser: "In World War I, peace feelers on either side were consistently interpreted out of existence ... Similarly in 1940, Hitler's proposals for a negotiated peace with Great Britain after the fall of France were given less than a full hearing in London. ... Too accommodating an approach to war termination may produce concessions which make another war likely in the near future." I.e., the 1918 Armistice ending WWI led to a resurgence and WWII! Similarly, objective studies show that such foolishness in ending WWIII without a decisive military victory will be premature and will therefore simply lead to resurgence, and WWIV. As General McArthur put it after being fired by Truman over Korea: "There is no substitute for victory." However, gratuitous or careless violence (city bombing, napalming kids etc) against civilians to try to suppress dedicated enemy insurgents in Korea and Vietnam undermined the legitimacy of short-term gains and lost the propaganda war for "hearts and minds". War remains a political instrument of power, specifically a demonstration of strength in preparation for a genuinely desired peace negotiation. If you try to bypass the force of war, you get appeasement or pettifogging lies designed to undermine your strength and allow your opponent to launch a successful war against you. Clausewitz argues that war is the act of disarming your opponent to ensure successful peacetalks.

"Another line was drawn by the U.S. decision-makers who decided in 1957 not to test a 60-megaton bomb. That decision remains unchanged even though the Soviets have tested such a bomb." - Herman Kahn, 22 November 1963 Hudson Institute report HI-202-FR, "A Paradigm for the 1965-1975 Strategic Debate", AD436770, p245. Note that Kahn was speaking with insider knowledge here, because he did top secret thermonuclear weapons design work at RAND Corp for nuclear weapons tests, e.g. Dr Tom Ramos states on p118 of *From Berkeley to Berlin* that Herman Kahn was among those brought in to perform Livermore calculations for the 1954 Castle tests of advanced devices Ramrod and Morgenstern, which used x-rays from the primary stage to rapidly ram a subcritical rod of U235 into another within a hollow thermonuclear cylinder to produce a supercritical sparkplug in that part for more efficient fusion ignition, prior to its compression by x-ray ablation, as suggested by Teller, as an evolutionary development from the original gun-type triggered "Super", or to use x-rays to force inward several Monroe jets of U235 from several subcritical U235 cones placed outside a spherical fusion secondary stage in a "mace" or "morgenstern" shape (this is not actually as radical as it sounds, since the same idea - albeit using conventional explosives - is used to form jets of molten metal for armor penetrating conventional shells), which was suggested by Herbert York; only the latter idea was actually tested as Castle-Koon which Ramos says failed, supposedly due to receiving only half of the required supply of x-rays from a Los Alamos designed primary stage: see artist's impression sketches below (which are based on the conceptual evolution of the simple Ramrod into the more complex Mace/Morgenstern design, as described by Ramos). This also had the advantage of increasing the surface area of the secondary stage, absorbing more x-ray energy, thereby increasing efficiency:

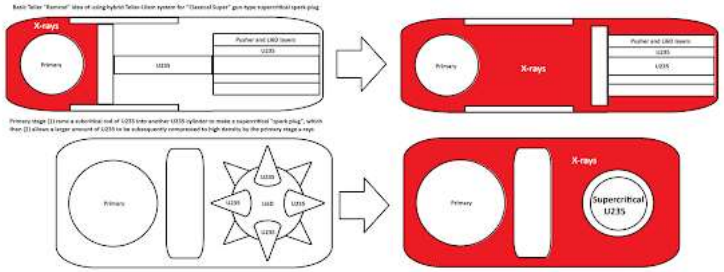


Primary stage (1) rams a subcritical rod of U235 into another U235 cylinder to make a supercritical "spark plug", which then (2) allows a larger amount of U235 to be subsequently compressed to high density by the primary stage x-rays



Morgenstern "mace" design 110 kiloton Castle-Koon test.

Spherical secondary fusion stage with cones of subcritical fissile material which would be driven into the secondary stage by x-ray ablation recoil, therefore inserting a supercritical mass prior to full compression, to maximise efficiency. Tom Ramos reports that Herbert York suggested the spikes. The secondary failed to work because the Los Alamos primary gave only half the x-ray radiation predicted.



ABOVE: "Teller was fixated on development of a hydride warhead [1953 Nevada "boosting" nuclear tests Ruth and Rae, containing uranium deuteride] ... As the hydride imploded and approached a critical state, nuclear fissions heated up the mass, causing it to expand. The neutrons ... moderated (slowed) by the deuterium in the fuel, were not fast enough to cause further fissions. ... The device gave a sudden, but small, burst of energy, then stopped. ... 'The first explosion [Ruth] left about 125 feet of the 300-foot tower still standing.' ... *Teller remained confident and saw no need to make changes to his plan for the Castle event. His thermonuclear device was called the Ramrod, and it was truly a classic Super ... Brown's Megaton Group calculated every aspect of the device ... They had help: RAND physicists, including Albert and Richard Latter, David Griggs, Ernie Plesset, and Herman Kahn, lent their support. They had to decide how far to place the Ramrod from an atomic device, the primary, and what size the primary should be. ... As calculations progressed, it became evident segments of Teller's concept for the Ramrod had to be changed. More calculations brought more changes, with one of the more exotic being an alteration suggested by Herb York that made the device resemble a mace, a Medieval weapon. Teller was concerned the purity of his original Ramrod design was getting lost, so a compromise was offered and designs for two devices were pursued. The Echo event in Castle would feature the Ramrod without significant changes, while the Koon event would test the device with features dictated by code calculations. The Koon device went through one reconfiguration after another. What stymied designers was their inexperience in dealing with radiative transport calculations [more important for a spherical secondary secondary implosion, than the simpler 2-dimensional axial compression of cylindrical sausage shaped secondaries, tested already as Mike in 1952]. ... A minor crisis over the design of the Koon device erupted in July 1953 when they found the choice of materials for the radiation channel was not ideal for the distance they had chosen between the primary and the secondary.* ... the Bravo blast contaminated the area around the Echo device, so that event was rescheduled for late April. This meant the Koon device would be tested before its simpler cousin, the Ramrod. ... The resulting test was a bust. ... York, in consultation with Brown, Sewell, and Teller, cancelled the Echo event. ... Montgomery Johnson ... led a team to examine the data from the Koon event. His conclusions about what went wrong have stood up to the passage of time. He determined the calculations of energy flowing throughout the device had been wrong. May agreed ... comparisons of the radiative transport calculations with measurements of the output of the Los Alamos primary had shown they differed by a factor of two. The device's design had been based on those calculations, so it was not optimal and contributed to its failure." - Dr Tom Ramos, *From Berkeley to Berlin*, Navy Institute Press, 2022, pp. 111-121.

Note that Dr Ramos goes on to describe how these Livermore Radiation Laboratory failures soon inspired the greatest successes in tactical nuclear warheads and MIRV warheads at Operation Redwing in 1956, e.g. the linear implosion Swallow device which led to the 155mm diameter artillery shell which deterred Russian invasions between 1963-92 (replacing the Mk54 Davy Crockett), and the 360 kiloton Mohawk test of the Flute device, a lightwight thermonuclear

warhead using a 15 kiloton Swan primary stage. Piccolo, a scaled-down version of the Flute, was adopted as the first thermonuclear warhead for the Polaris SLBM submarine deterrent! This amazing history should be incorporated into school physics education, so everyone will understand deterrence at a technical level, eliminating the usual luddite ignorance of the technology:

"Polaris needed to be compatible with RAND's Counterforce Strategy. Analysts like Brodie and Kaufmann had been preaching the merits of striking military targets as an alternative to Eisenhower's Massive Retaliation strategy, which meant Polaris needed to be accurate enough to put relatively small targets, rather than entire Soviet cities, at risk. ... The weight of the entire reentry body - warhead, heat shields, arming and fusing system, everything - was 850 pounds; by comparison, the Atlas [first USA ICBM] warhead weighed over 3,000 pounds. In January 1960 the USS George Washington, America's first Polaris submarine, was launched for sea trials." - Dr Tom Ramos, *From Berkeley to Berlin*, Navy Institute Press, 2022, pp181-2.

President Kennedy, March 28, 1961 special message on the defense budget for flexible response:

"Our defense posture must be both flexible and determined. Any potential aggressor contemplating an attack on any part of the Free World with any kind of weapons, conventional or nuclear, must know that our response will be suitable, selective, swift and effective. While he may be uncertain of its exact nature and location, there must be no uncertainty about our determination and capacity to take whatever steps are necessary to meet our obligations. **We must be able to make deliberate choices in weapons and strategy, shift the tempo of our production and alter the direction of our forces to meet rapidly changing conditions or objectives at very short notice and under any circumstances. Our weapon systems must be usable in a manner permitting deliberation and discrimination as to timing, scope and targets in response to civilian authority; and our defenses must be secure against prolonged re-attack as well as a surprise first-strike**."

US Defense Secretary McNamara, Ann Arbor, Michigan, June 16, 1962 no-cities war policy:

"The United States has come to the conclusion that, to the extent feasible, **basic military strategy in a possible general nuclear war should be approached in much the same way that more conventional military operations have been regarded in the past. That is to say, principal military objectives, in the event of a nuclear war stemming from a major attack on the alliance, should be the destruction of the enemy's military forces, not of his civilian population.** The very strength and nature of the alliance forces make it possible for us to retain, even in the face of a massive surprise attack, sufficient reserve striking power to destroy an enemy society if driven to it. In other words, **we are giving a possible opponent the strongest imaginable incentive to refrain from striking our own cities**."

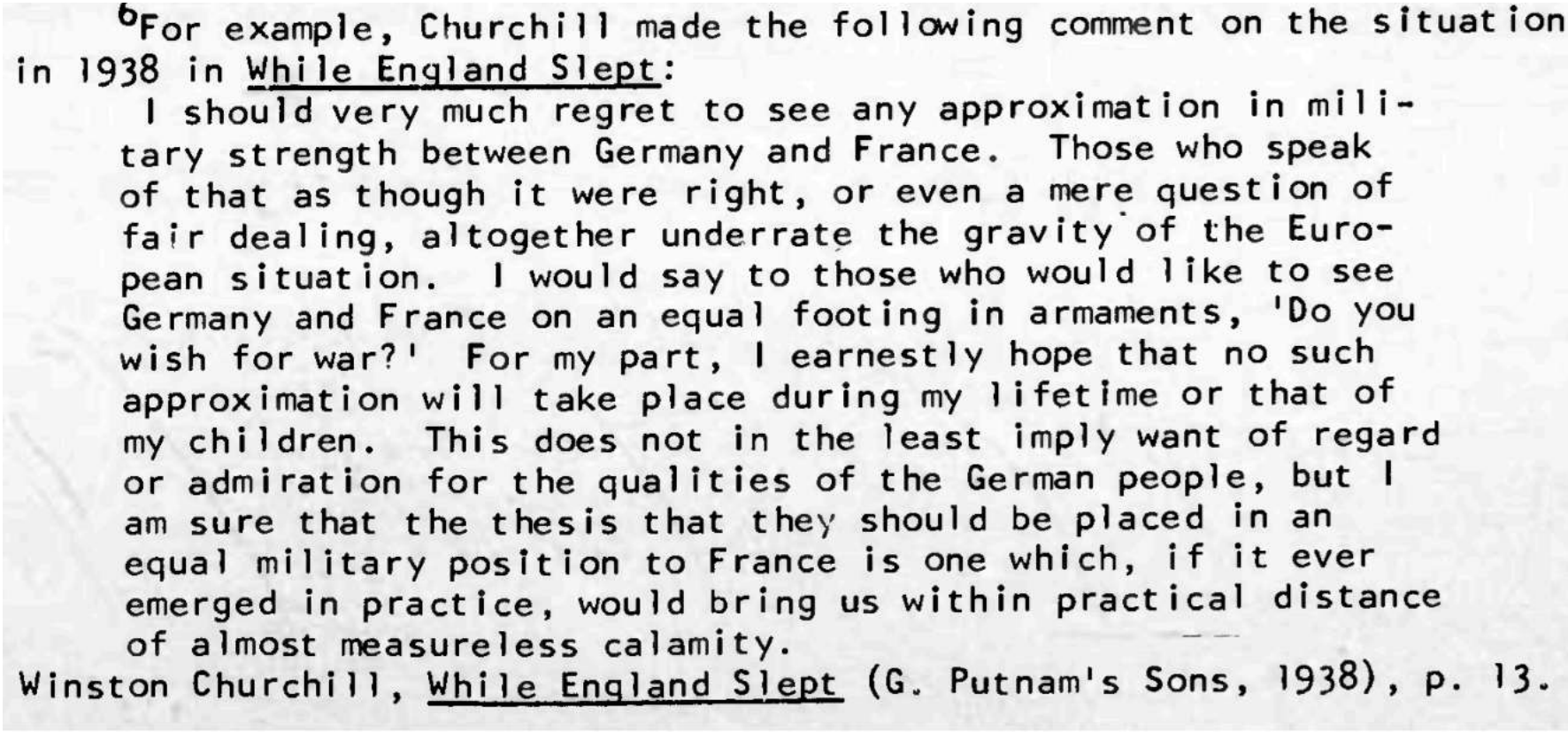
The point is, anti-nuclear propaganda from Kaplan and pro-Russian left wing arms control and disarmament lobbies keeps going on about the early Eisenhower era anti-civil defense, anti-flexible response SIOP's for countervalue nuclear war, but the reality is that such policies were discredited and discarded over fifty years ago as incredible deterrents of the kinds of provocations that triggered all world wars, and instead nuclear war plans now focus primarily on military targets, not city destruction; the vast increase in Russian low-yield tactical neutron bombs in recent times reinforces the fact that the enemy is also on the same page. Killing civilians is not the primary rationale for credible nuclear deterrence. Deterring invasions and wars should be the key motive, regardless of lying propaganda fronts. (For further discussion of the context of Kennedy's no-cities policy, please see **pp 137-8 of Herman Kahn's 22 November 1963 Hudson Institute report HI-202-FR, "A Paradigm for the 1965-1975 Strategic Debate", AD436770**.)

"Consider Hitler. When he was obviously losing the war, he ordered poison gas warfare. His subordinate, Speer, sabotaged the order. Speer reasoned, "Yes, we have the poison gas, and we're losing the war, but the allies have more poison gas. We don't gain anything by using poison gas. We just kill all the Germans." When Hitler threatened to have him shot, Speer said, "You can shoot me, but I won't follow the orders." Hitler also ordered a scorched-earth policy, but this, too, was countered. Speer distributed machine guns to the factory workers so that the soldiers could not burn the factories down." - Herman Kahn, "A Paradigm for the 1965-1975 Strategic Debate", Hudson Instite report HI-202-FR, page 131 (footnote 11), AD0436770. Note: after defeat in WWII, Albert Speer distanced himself from Nazi fanatics for self-aggrandising public relations, to escape prosecution for war crimes; the fact remains regardless that the Nazis did *not* initiate knock-out blow gas warfare using their 12,000 tons of nerve agent tabun, because we had gas and anthrax bombs.

Do nuclear stockpiles, used for war deterrence, really have any relevance to how many megatons will be used in a non-"knockout blow" World War III? *Herman Kahn pointed out that all "arms control and disarmament" delusional propaganda is swept away when a World War breaks out, and both sides produced most of the weapons used in world wars - including 100% of the mustard gas used in World War I and 100% of the nuclear weapons used in World War II - DURING THE WARS, NOT BEFORE THE WARS.* So the size of pre-war stockpiles were irrelevant, except where disarmament undermined the deterrence of world wars. The point is, if you disarm before a world war, you reduce your deterrence of world war, thus making world war more likely, WITHOUT reducing the probable number of weapons to be used in the war (because most weapons used in each world war were made during the world war, not before it). As Kahn pointed out, the real Hitler was entirely different to historian A. J. P. Taylor's CND-biased anti-nuclear propaganda "history" version of Hitler. The real Hitler didn't declare war first, he simply tested the water and invaded when he found a *lack of credible deterrence*. The appeasement policy encouraged Hitler to start WWII. The real cause of World War I, similarly, was not Lord Grey's claimed arms race or stockpiles of deterrent weapons, but the exact opposite. Pre-war stockpiles were intended for a short war, and ran out fast. WWI was won when: (1) we managed to increase explosive shell output *DURING THE WAR ITSELF TO EXCEED ENEMY WARTIME WEAPONS PRODUCTION,* i.e. "vertical escalation", and (2) when "horizontal escalation" occurred, i.e. the entry of the U.S.A. into World War I. Similarly, in World War II, war termination had nothing to do with pre-war weapons stockpiles being exhausted: there were no nuclear stockpiles in 1939, but two nuclear weapons were used to end the war! Such facts, Kahn argued, completely refute the notion that reducing pre-war weapons stockpiles will reduce the horror of World War III, by somehow determining the course of the war. They are irrelevant to World War III termination. The entire arms control and disarmament community is built upon the quicksand of weapons effects and weapons use lying, the same type of "gas city-bombing knockout-blow on day 1" delusions, peddled by Nazi fellow-travellers in the 1930s, to engineer the appeasement delusion leading to World War II. In other words, like the 12,000 tons of Nazi tabun nerve agent made by the Nazis but never used (even in gas chambers), nuclear facts simply debunk CND's propaganda. The reality is that tactical nuclear deterrence of invasions, to prevent escalation of conventional wars into world wars, is a lesson of all the world wars of history, as is the eternal refusal of people and their leaders to adequately prepare to deter each forthcoming world war:

Popular Flying Magazine, vol. 2, n. 10, January 1934, pages 526-528 and 560: "**Where Stands Germany? By the editor (Captain W. E. Johns)** ... History is repeating itself very clearly. Another war was made inevitable by the Treaty of Versailles ... In spite of the misery and bloodshed he had caused, Napoleon's return to Paris was a Triumph ... At the end of the Franco-German War of 1870 we see the danger zone removed to a victorious, Bismarck-worshipping Germany, thirsting for more conquests. In 1914 its pent-up eagerness burst the dam of civilisation, and the catastrophe of the Great War was the result. ... Where does Germany stand today? By the Treaty of Versailles she is not permitted to arm, but that she has not kept strictly to the letter of the disarmament clause is no secret ... There are probably more pilots and embryo pilots in Germany that in any country in the world. ... In 1932 no less than 25 new Juvenile (Jungflieger) Groups were formed! ... in Germany, every weekend, there are 1,200 gliders in the air, with 10,000 glider pilots awaiting their turn to fly. Three thousand one hundred and twenty-two 'B' and 'C' certificates have been issued in the last two years ... Make no mistake, these glider pilots are ready-made power-pilots. ... The cost of a thousand aeroplanes today would be nothing to what failure to safeguard ourselves might cost."

Popular Flying Magazine, vol. 5, n. 2, May 1936, pages 63-65: "**On the Folly of War (By the editor, Captain W. E. Johns)** These words are written in the hope that they will dispell any lingering suspicion that this magazine is a protagonist of the dreadful business of war. Why anyone should think so is more than I can say, but the Royal Commission on the Private Manufacture of and Trading in Arms evidently thinks so, for in its report it has quoted certain statements that have been made on this page and endowed them with a meaning far from the one intended. ... Other nations, with disturbing deliberation and unmistakable purpose, have armed themselves. ... England alone allowed her machinery of war to fall into disrepair and obsolescence. The Disarmament Conference failed, and now they seek the reason. The reason was that England had lost her talking point. With three thousand more aeroplanes in the nation's hangars, our 'friends' would have been more genuine in their anxiety to talk of peace. Surely it must be quite clear to anyone who has watched the march of events since 1918 that England, inadequately armed, was wasting her time by even attending conferences of any sort, where


[6]For example, Churchill made the following comment on the situation in 1938 in While England Slept:

I should very much regret to see any approximation in military strength between Germany and France. Those who speak of that as though it were right, or even a mere question of fair dealing, altogether underrate the gravity of the European situation. I would say to those who would like to see Germany and France on an equal footing in armaments, 'Do you wish for war?' For my part, I earnestly hope that no such approximation will take place during my lifetime or that of my children. This does not in the least imply want of regard or admiration for the qualities of the German people, but I am sure that the thesis that they should be placed in an equal military position to France is one which, if it ever emerged in practice, would bring us within practical distance of almost measureless calamity.

Winston Churchill, While England Slept (G. Putnam's Sons, 1938), p. 13.

The problem of "parity": Herman Kahn quoting Churchill's dismissal of parity as a solution in 1938, on page 373 of 22 November 1963 Hudson Institute report HI-202-FR, "A Paradigm for the 1965-1975 Strategic Debate", AD436770

the men who have had the guns have ever called the tune. Following the line of argument of the disarmament theorists, we might as well disband the police force in the hope of ending crime." (The centrefold pages, 84-85, of this May 1936 issue of Popular Flying are a spread of 8 still frames from the 1936 H. G. Wells' next-war movie, *Things to Come*.)

Herman Kahn (RAND Corp), testimony to US Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, Hearings on Biological and Environmental Effects of Nuclear War, 26 June 1959, page 947:

"They can test you experimentally and find out gradually what [provocations such as invasions, limited wars, coercion, etc.] you are willing to take, and they can probably do it reasonably safely. ... I do not believe that one should, even in the most indirect way, threaten massive retaliation for such incidents as Korea and Indochina [Vietnam]. These issues are just not big enough to justify world war III. In fact, the less you talk about massive retaliation the better ... In other words, the Russians test a missile so some Europeans and Americans act as if they have 500 missiles in existence. This is a human reaction ..."

Herman Kahn (RAND Corp), testimony to US Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, Hearings on Biological and Environmental Effects of Nuclear War, 26 June 1959, page 888:

"Type 2 deterrence, deterring extremely provocative actions, involves a quite different calculation. It is again a Russian calculation. Only the Russian asks himself: If I do this very provocative thing, which is less than a direct attack on the United States, but which is still very provocative, will the Americans start the all-out war? That must be influenced by whether or not the Americans think they can survive the counterattack. ... *Things will be completely reversed from the type 1 [direct attack on USA] deterrence calculations. I must emphasise that in both World War I and World War II it was type 2 deterrence we were talking about. That is, the British declared war on the Germans, and not vice versa* [Emphasis added]."

Herman Kahn (RAND Corp), testimony to US Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, Hearings on Biological and Environmental Effects of Nuclear War, 26 June 1959, page 904:

"I should like to emphasise: Britain declared war on Germany in 1914. Britain declared war on Germany in 1939. ... I have a book with me today which I recommend to those who want to exaggerate the impact of thermonuclear war. It is called 'Munich: Prologue to Tragedy' ... Wheeler-Bennett ... discusses why Chamberlain and Daladier folded. When they returned from Munich they were cheered by their people in Paris and London, because war had been averted. ... some people began to understand that war had been averted by a sellout of the worst sort. ... The people who criticised Chamberlain and Daladier, with a couple of exceptions ... said 'Hitler was bluffing and you should have stood your ground'. As far as we can tell, Hitler was not bluffing. ... If the other man is not bluffing, and he may not be, then we have to ask ourselves, 'Are we willing to fight or are we not?' "

I.e., drawing "red lines" in speeches and then doing nothing to enforce them when they are violated, actually encourages further aggression, if the opponents want to "test your resolve", *a non-existent resolve due to misguided fear and thus weakness*. Note that these June 1959 US Congressional hearings illustrate a repetition of the 1930s "knockout blow gas air raid extermination of cities"-type fear-mongering by "pacifists" like Lord Noel-Baker from 1929-39. The first witness

on 22 June 1959 was Eugene Quindlen, of the US Office of Civil and Defense Mobilization, who claimed Russia would deliver a knock-out blow of 1,446 megatons (all ground surface burst) in 263 weapons of average yield 5.5 megatons, killing 19.7 million within 24 hours, and fatally injuring a further 22.2 million by radiation (the survivors received an average of 110 roentgens within 90 days). Quindlen again testified on 26 June 1959, when he had to be asked repeatedly for the source data he used to calculate the effects of the attack, since casualty calculation data had been excluded from the unclassified June 1957 Glasstone book, *The Effects of Nuclear Weapons*.

It soon became clear that Quindlen had assumed no protection at all by modern city skylines shielding blast and radiation, or even duck and cover. On page 857, Quindlen submitted a further statement "Method of casualty computation in NDAC damage assessment program", stating: "The casualty percentage tables are based on the Hiroshima-Nagasaki data", referring readers to a "Secret" classified document, "Vulnerability functions for civil defense damage assessment program", prepared for Federal Civil Defense Administration by Stanford Research Institute in April 1956. One problem here is that people indoors on the lower floors of concrete buildings in Hiroshima had 50% survival at 0.12 miles, while school children unshielded outdoors had 50% survival at 1.3 miles range, an area 121 times bigger! Another "problem" is that simple civil defense shelters in combination with target area evacuation and dispersal to rural areas in a crisis causes a reduction to very few casualties! Similarly, fallout radiation protection factors have always been similarly manipulated in such secretive "studies". Page 88 of the hearings gave first hand testimony by Dr Terry Triffet, the fallout project officer at Bikini Atoll for the 1956 thermonuclear test series "Operation Redwing", showing that for a standard 5 megaton 50% fission surface burst the mean gamma ray energy in the sheltering period at a week after detonation was 0.25 Mev at 8 miles, and 0.35 Mev at 60 miles downwind, where it was 0.60 Mev at 12 hours and 0.40 Mev at 24 hours after detonation.

These figures are substantially lower than the assumptions of 0.7-1.25 Mev used for protective faction calculations! This means real protection is greater than predicted, due to the fact that dirty nuclear weapons of high fission in U238 give lower energy gamma spectra due to the low energy gamma emitters Np239 and U237 caused by non-fission capture of neutrons in the U238 pusher. This was simply ignored in casualty estimates! Dr Triffet even tried to stress this problem in the discussion published on page 205: "I thought this might be an appropriate place to comment on the variation of the average energy. It is clear when you think of shielding, because the effectiveness of shielding depends directly on the average energy ... if induced products are important in the bomb, there is a lot of radiations emanating from these, but the energy is low so it operates to reduce the average energy in this period and shielding is immensely more effective." Dr Ralph Lapp then muddled the waters by ignoring Triffet's secret data on the low energy of gammas from Np-239 and U-237 during the sheltering period, and instead arguing that Na-24 has high energy! The discussion then switched to high altitude bursts and Triffet's argument was forgotten. On page 212, the cobalt-60 bomb of science fiction (the "Doomsday Machines" of "anti-nuclear" films like On the Beach and Dr Strangelove, etc) are dismissed in testimony: "Cobalt 60 with a half life of 5.3 years has been mentioned infrequently in the press. The half life is still long compared with times considered to be militarily decisive. The substitution of a 'deadweight' material in the bomb in place of uranium which produces high explosive and radioactive yield does not appear of military value ..."

Every neutron absorbed by Co-59 in the bomb to produce Co-60 gives a resulting 2.5 Mev of radiation which is spread out at a low dose rate over years, thus permitting fallout decontamination to remove the dust or shelter building before a significant dose is accumulated, compared to about 200 Mev of energy - including far more radiation, received at a higher dose rate - from using the same neutron to fission U-238 in the pusher of the bomb! Another issue is that cobalt is refractory, not volatile like the gases and vapours of fission product decay chains, that results in very small size particles of global fallout. In other words, cobalt-60 condenses fast on to large particles, and ends up essentially concentrated in the local fallout, not the global fallout of fictional films. Evidence of this basic chemistry fact includes the example that concentrated large cobalt-60 pellets were found near ground zero after cobalt was placed as a diagnostic into a "inert" secondary stage of a two-stage weapon at Operation Antler, Maralinga, 1957. Another example is cobalt-60 used as a tracer at Operation Redwing, Bikini, 1956, as explained on page 217 of the hearings: "It is interesting to note that the locally deposited cobalt 60 contributed largely to the 1- to 10-year activity in the Redwing sample." Such "technical trivia" are simply ignored by the anti-deterrence film makers!].

Another major problem with fallout calculations is demonstrated at page 866 of the June 1959 hearings which gives assumed fallout protection factors "based on behavior patterns chosen by some social scientists for two particular situations" (completely unstated, of course), "prepared" with a mean protection factor of 6.8 and "unprepared" with a mean fallout protection factor of 2.6. But for realistic civil defense sheltering, you achieve protection factors of 40-100 or more, so these 2.6 and 6.8 protection factors "estimates" are *fiddles, a fact proved when you look at detailed secret-classified reports on which they are based, based on assuming that people go outside to get exposed for unshielded radiation for long periods every day, to reduce their fallout protection by large amounts (e.g. assuming people go outdoors for hours each day was used to reduce true protection factors by a factor of 7 for the 1970s anti-civil defense fiddled fallout casualty calculations of the ACDA bigots, as exposed by Reagan's civil defense expert, T. K. Jones)!* Herman Kahn, on pages 437-8 of *On Thermonuclear War* places the blame for such secrecy-abusing anti-civil defense lying propaganda squarely at the feet of the Eisenhower administration's hatred of civil defense. E.g., Ike's Federal Civil Defense Administration director, Val Paterson, was a fiction deluded, crazy knockout-blow extermination BS fanatic, telling the 27 July 1956 Holifield Congressional Hearings *Civil Defense for National Survival* (pp80-81) that civil defense is "a very nearly hopeless problem". It sure as hell is, if you fake all your data!

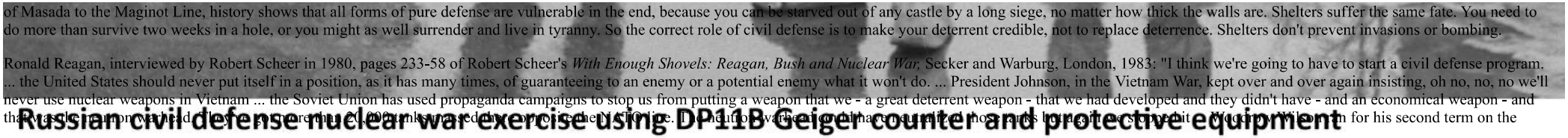
"In the summer of 1955, a vast formal program was undertaken to train the entire Soviet population in the fundamentals of atomic defense. A 10 hour course was worked out, providing general information on the atomic bomb, its effects, and the methods of protection against it ... The entire adult population of the Soviet Union was called upon to complete the course by the end of 1956; if Soviet claims are to be accepted, 85.5% of the people did so." - U.S. Congress, 5th Report of the House Committee on Government Operations, House of Representatives, *Civil Defense in Western Europe and the Soviet Union,* 1959, p42.

This is a repetition of the way civil defense gas masks and shelters were "debunked" by 1920s Lord Noel-Baker et al., thus starting WWII by supporting fascist appeasement: if you secretly assume that hardly anybody uses a gas mask or a shelter, your published so-called "calculated" effectiveness of civil defense is then completely trivial and useless, so you can falsely claim "civil defense is a fraud", and use the resulting paucity of alternatives to either surrender or to go in for appeasement, starting a world war as in the 1930s. This relies on the gullible mass media believing and promoting the lying gibberish attacks on civil defense effectiveness by the thugs employed to kick civil defense in the teeth with propaganda tricks, from within the bureaucracy, to save a few bucks and appease military bigots who refuse a cent to civil defense to save lives if military deterrence fails. Another aspect of those hearings was the arguments between fallout meteorologists on how predictable fallout really is. In 1956, at Operation Redwing, Edward Schuert had correctly predicted the fallout hot lines and danger areas for 3 out of 4 high-yield surface bursts, under simulated combat conditions during unstable meteorological conditions, see his report *A Fallout Forecasting Technique With Results Obtained at the Eniwetok Proving Ground*, USNRDL-TR-139, but he explained there clearly what the problem was with nuclear tests: "**proper firing conditions, which required winds that would deposit the fallout north of the proving ground, occurred only during an unstable synoptic situation of rather short duration**." In other words, as in Nevada, the prevailing winds blow from the West towards the East, meaning that inhabited St George Utah is directly downwind in normal conditions for Nevada shots, and inhabited Rongelap Atoll was directly downwind of the prevailing winds at Bikini; the only way to safely test at either place was to delay firing until a *passing weather system temporarily deflected the prevailing winds, to carry the fallout northwards instead of eastwards.* This is why fallout prediction was difficult at the nuclear tests and accidents or extreme windshear (e.g., winds blowing in different directions at different altitudes) occurred which gave complicated fallout maps; these were only ones to make front page news, naturally! This fact, as for the blast and thermal exaggerations by unobstructed terrain, was reversed by Glasstone, who claimed in *Effects of Nuclear Weapons* that nuclear test data underestimated the threat and reduced the fallout prediction problems, when in fact they were known to exaggerate the problems by eliminating city skyline shielding of blast and radiation, and to make fallout prediction harder.

In the June 1959 hearings, meteorologist Charles Shafer explains on page 208 that the extreme windshear of most fallout patterns at Bikini in 1956 were not applicable in general "except to the Gulf States in the summertime." The 1959 hearings at page 214 also pointed out the conflict of interests between military secrecy on protection afforded by simple foxholes and military improvised shelters against blast and radiation at nuclear tests, and their use for civil defense: "There are many areas where houses are not provided with basements. It would appear that the best protection available to people in such areas would be found in hastily dug foxholes or slit trenches. In view of a similar problem existing in the tactical employment of nuclear weapons, it is reasonable to suppose that field data are available on the performance of such shelters. Those data ought to be made available to the public."

This was ignored. This cheap shelters point is relevant to civil defense against nuclear attack, as explained by Herman Kahn in *On Thermonuclear War* pages 333-4: very expensive fortifications were tried out by the French after WWI, e.g. their concrete bunker frontier "Maginot Line" bred a sense of false security and the enemy could simply bypass it, and also fly over it to drop paratroops. So defense by itself is insufficient. You also need to be able to use force. From the Siege





of Masada to the Maginot Line, history shows that all forms of pure defense are vulnerable in the end, because you can be starved out of any castle by a long siege, no matter how thick the walls are. Shelters suffer the same fate. You need to do more than survive two weeks in a hole, or you might as well surrender and live in tyranny. So the correct role of civil defense is to make your deterrent credible, not to replace deterrence. Shelters don't prevent invasions or bombing.

Ronald Reagan, interviewed by Robert Scheer in 1980, pages 233-58 of Robert Scheer's *With Enough Shovels: Reagan, Bush and Nuclear War,* Secker and Warburg, London, 1983: "I think we're going to have to start a civil defense program. ... the United States should never put itself in a position, as it has many times, of guaranteeing to an enemy or a potential enemy what it won't do. ... President Johnson, in the Vietnam War, kept over and over again insisting, oh no, no, no we'll never use nuclear weapons in Vietnam ... the Soviet Union has used propaganda campaigns to stop us from putting a weapon that we - a great deterrent weapon - that we had developed and they didn't have - and an economical weapon - and that was the neutron warhead ... they've got more than 20,000 tanks massed there, opposite NATO ... The neutron warhead could have neutralized those tanks but we stopped it. Woodrow Wilson ran for his second term on the promise or the pledge that he kept us out of wars. ... he took insult after insult ... finally the Germans declared open warfare on all shipping in the Atlantic Ocean, regardless of whether you were a neutral nation or not. And the Lusitania was sunk and, finally, we were in a war. ... the Kaiser got the idea from ... the policy that the United States was determined not to go to war. So he ignored that possibility ... Franklin Delano Roosevelt ran for his third term, and ran on his own personal promise, 'I will not send young Americans, your sons, to fight.' ... you've got an ambassador who is assuring von Ribbentrop that the United States wouldn't go to war ... Hitler at this time said, we can count on it ... the Japanese attacked Pearl Harbor. ... I say that we are going to war if a man like Carter continues giving the wrong signals, backing away from the Soviet Union. We will one day find ourselves pushed to the point where there is no retreat and we have no further choice." (Scheer's commie BS is reviewed honestly by Richard Sincere in his excellent "Shovelling appeasement" review of Scheer's political diatribe in the 4 February 1983 *Washington Times,* linked **here**.)





ABOVE: Lt.-Gen. James M. Gavin, who states in his book *War and Peace in the Space Age*, Hutchinson, London, 1959, pp. 102, 116-118:

"The Luftwaffe was the first to learn that there is more to air power than an all-out bombing offensive. The British had foreseen the value of the interceptor, and so the world's greatest manned aircraft battle, the Battle of Britain, was decided in their favor. ... **As the war came to an end, the U.S. Strategic Bombing Survey was appointed to move in the wake of the advancing armies and assess the results of our bombing effort. The findings were reported in our 200 detailed reports. They were never, in my opinion, given the recognition that they deserved. One of the most interesting aspects of our bombing effort was that German production increased in the same ratio as our bombing effort until late in 1944 - until 'well after the ground armies were ashore to make good the job at which the aeroplanes had been unsuccessful'.** ... I became increasingly interested in these problems. It was with great pleasure, therefore, that I received orders to the Weapons Systems Evaluation Group [WSEG] in March of 1949. The Director of WSEG, Dr Philip Morse, assigned me the project of studying the possible tactical employment of nuclear weapons. I devoted the entire summer of 1949 to reading everything on the subject ... and talking to our scientists. ... I had become convinced that nuclear weapons had a tremendous field for tactical application, in fact, in the long run, probably the most promising field of all. One of the recommendations in the study was that we should reconsider our then current policy of allocating all fissionable material to strategic use. This recommendation was very unpopular with my air force colleagues and, for the study to be accepted, had to be striken from it. **It made little difference, since the study was stamped 'Top Secret'** ... Dr Oppenheimer was present at one of the conferences and he expressed a view in which I found myself in complete agreement. That is, that more important than trying to devise new ways and means of destroying a bigger portion of the human race, we should try to find ways and means of living with the powers we had already created. ...

"If the urban bombing concept were to remain policy, and thermonuclear weapons were to be added to it, and if that concept were morally and militarily unsound in the beginning, it certainly would be more so with the H-bomb added. I believed that it was unsound and that Dr Oppenheimer's views were valid. ... an increasing number of people were talking about the possible tactical uses of nuclear weapons. An advance group in the JCS headed by Brigadier General Don Zimmerman, USAF, had done particularly good work in this area. ... I recall a figure used by General Zimmerman that when we exceeded 25 B-29 bombers delivering high-explosives instead of using one carrying an atomic bomb, we were making an uneconomical use of our resources. Thus, we approached the Korean crisis ... with our newest form of firepower, nuclear fire power, packaged for strategic use. ... General Nichols and I went to the office of General Ridgway and urged that he recommend to the Chief of Staff that he in turn recommend to the President that we use nuclear weapons against the North Korean forces. It would have been militarily inexcusable to allow the 8th Army to be destroyed without even using the most powerful weapons in our arsenal. Yet, we almost did so! We had already made two combat bombing strikes of about 175 B-29s without decisive results. The situation in the summer of 1950 offered us a number of well worth-while tactical nuclear targets, if we had had the moral courage to make the decision to use them."

KEY FAILURES OF TODAY'S "MINIMAL DETERRENCE" (KAHN'S "TYPE 1 DETERRENT" AKA THE DREADNOUGHTS THAT FAILED TO DETER THE INVASION OF BELGIUM IN 1914 THAT TRIGGERED WWI), PROVING THE NEED FOR THE SUCCESSFUL CREDIBLE DETERRENT OF TACTICAL NUCLEAR WEAPONS TO DETER INVASIONS THAT SET OFF WARS:

1. It doesn't deter world war situations, which both occurred because of invasions of 3rd parties (invasion of Belgium 1914, Poland 1939), akin to the 2014 and 2022 invasions of Ukraine by Russia. In other words, you need credible deterrence of major provocations.

2. It doesn't even deter a direct attack by fanatical opponents, such as the October 2023 Hamas surprise attack on Israel or the December 1941 Pearl Harbor surprise attack or the 9/11 attack by war-crazy thugs.

3. It assumes sanity on the enemy side, while mental pressures are brought to bear on the sanity of the opponent in response to major provocations, e.g. "sanctions" against the enemy hardens their resolve (aided by internal state propaganda of the enemy, blaming hardships on you), just as "pressure" such as napalming Vietnam failed to deter the Tet Offensive. If you ban your use of overwhelming force to credibly stop or deter an opponent, you don't end in a fairy tale land of mutual love and understanding, but with a battle-hardened opponent, with the fighting mentality of a wounded animal. In other words, you get the opposite result.

4. The only people who can be safely and credibly deterred with "minimal deterrence" are not terrorist states, but generally established democracies, who you don't have fights with anyway (see Dr Weart's "Never at War: Why Democracies will not Fight One Another"), so you've reduced deterrence down to a level where it's only credible in situations where NOT needed! Duh! Try explaining this with any hardened fanatical "pacifist" and you soon see they're fanatical ranting lunatics obsessed with moronic "taboos" or war-making eugenics "Russian communist" pseudoscience genocide schemes, and not the least interested in what they claimed they're concerned with, PEACE!

Herman Kahn (RAND Corp), testimony to US Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, Hearings on Biological and Environmental Effects of Nuclear War, 26 June 1959, page 893:

"There are less than 50 million people in the largest 135 Russian cities. As far as we can tell, it is perfectly possible to evacuate 80% of this urban population and have all vital functions in the cities performed. This would leave only 10 million people at risk in 135 cities. Having been alerted, these could evacuate on very short notice."

Herman Kahn (RAND Corp), testimony to US Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, Hearings on Biological and Environmental Effects of Nuclear War, 26 June 1959, page 897:

"Only the survivors have children. If current beliefs are true, 1,000 roentgens should at most double the normal [4%] burden of defects, probably less."

Herman Kahn (RAND Corp), testimony to US Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, Hearings on Biological and Environmental Effects of Nuclear War, 26 June 1959, page 901:

"In any crisis many will be cynical of the integrity of the Government and will argue that the Government says these [fallout radiation dose] standards are acceptable because it must say so, that conditions are such that it has no choice, but that in fact the standards will result in a drastic level of casualties."

Herman Kahn (RAND Corp), testimony to US Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, Hearings on Biological and Environmental Effects of Nuclear War, 26 June 1959, page 900:

"But I might point out, no one has ever seen a bone cancer directly attributable to radioactive material in the bone at less than the equivalent of 20 to 30 microcuries. [I.e. evidence for the dose threshold for the radium dial painters was known even in 1959, but ignored politically by those against deterring war; it is not "news".] ... Ten microcuries of Sr-90 per kilogram of calcium [adults have 1 kg of calcium in their bones] would mean a dose of about 20 roentgens per year in the bones. This would probably cause less than a year's loss of life expectancy."

Most (but not all) of the 1930s and 1950s science fantasy - not even science fiction - "knockout blow"-style attacks on the use of tactical deterrence to end the invasions that trigger large wars, including both world wars, were debunked by Herman Kahn both in the 26 June 1959 Hearings on the *Biological and Environmental Effects of Nuclear War* (quoted above), and in his 1960 book *On Thermonuclear War*, and Herman Kahn addresses his "critics" in his lengthy (24 pages long) February 1969 dated New Preface to the 1969 paperback edition of OTW published by The Free Press, New York, where he points out that the negative reviews were really the bigoted delusional doublethink or communist-style propaganda, designed to prevent people from taking the book seriously, by inventing false criticisms:

"the reviews that alleged that I had made use of the term 'megadeaths,' or had recommended Doomsday machines [are false] ... the word 'megadeaths' [is] *not* used in the book [*the Wikipedia article "Dr Strangelove" currently falsely claims megadeaths was invented by Kahn rather than liars, citing the 2014 Craig Nelson propaganda book called "The age of radiance"*.] ... Several associates have urged me to rearrange the book and put at the beginning Lecture III, 'World War I through World War VIII', followed by Lectures I and II. Lecture III does give a broad overview that would perhaps be more useful as an introduction than in the use I made of it - reviewing my argument, and in effect, driving points home. The lecture also seems to most readers and reviewers (including myself) far and away the most interesting part of the book. I would suggest that many readers may well find it best to start with Lecture III, the least technical of the lectures, and yet the one that deals with the most fundamental issues. ... Hitler often presented his views in the following manner: 'One of us has to be sensible, and it isn't going to be me,' or 'Either my way or holocaust.' The only way to deal with such an individual, if he is committed and really means it, is to be able to go to war... it was just this risk of mutual holocaust that frightened Hitler's enemies and enabled him to go as far as he did ... it seems likely that the United States no longer enjoys strategic superiority over the Soviets. It could make a difference. ... Many will argue that because both sides have 'overkill' capability, the notion of strategic superiority is meaningless ... This view could not have been tested until roughly 1968 or 1969. Up to that point ... in any serious crisis the Soviets were more likely to back down than the Americans. A U.S. negotiator could explicitly or implicitly say to a Soviet negotiator, 'As you know, if this ever came to a serious showdown, you would be unable to launch any serious attack on U.S. strategic forces. You could only attack U.S. cities, which would, of course, be suicidal, because it would immediately be followed by a retaliatory city attack of our own. You would therefore be deterred ... Today it is possible for an expert to say that because defense cannot be 100% certain, we cannot depend on defense but must depend on disarmament (as if disarmament could be 100% certain) and escape challenge. ... and yet millions of lives might be saved by ABM if deterrence fails [particularly in "demonstration strikes or accidents", the number 1 real threat!]. ... There had been almost no study of how to win a war - which is one kind of war termination - except by the most brute-force method, namely reducing the enemy to rubble. ... the more clever the fighting strategy and the tactics of fighting, the less damage one has to do, and suffer, in order to attain that objective. ... the same mis-emphasis seems to have plagued our Vietnamese policies to an almost unbelievable extent."

Regarding fake news claims that Kahn invented/recommended nonsense "Doomsday Machines" in *On Thermonuclear War*, Leo Szilard had called the H-bomb the "doomsday machine" on NBC (claiming it would be encased in cobalt to wipe out life by fallout) and Kahn had merely *refuted* Leo Szilard's 1950 anti-H-bomb news conference on gigaton cobalt-60 bombs by proving that they are *not a credible deterrent* any more than M.A.D (= Mutual Assured Destruction) was a credible deterrent, or the poison gas stockpiles on both sides in 1939 was a credible deterrent! Kahn states on page 147 of OTW: "The Doomsday Machine is not sufficiently *controllable*. ... a failure kills too many people, and kills them too automatically." (This is basically the message of Kubrick's film "Dr Strangelove", although the film is usually presented instead by ignorant "journalists" propaganda as being anti-Kahn, or discrediting Kahn, rather than merely making Kahn's point on the big screen! Kubrick did however play to the popular gullible audience's anti-nuclear prejudice. Kahn had served in the jungle war in Burma in WWII, and was a fanatical propoent of credible nuclear deterrence of World Wars as a result. Kubrick was delusional over all technical details, e.g. cobalt-60's half life is 5.24 years, not 100 years, and the cobalt bomb was debunked in the June 1959 Congressional Hearings on the Biological and Environmental Effects of Nuclear War, as was the notion that you need mineshafts to shield fallout radiation. Simple, cheap, improvised WWI and WWII style shelters will do!) Kahn's whole argument is against such nonsense, e.g. see *On Thermonuclear War* pages 297-301: "They [nuclear deterrents] must not be Doomsday Machines, or Homocide Pact Machines. They must not even look like they could be Doomsday Machines if misused, much less when used as authorized. I cannot stress how important it is that it be made clear that we are not developng and planning the use of Doomsday Machines - or even systems which, if they should be used (whether they are good deterrents or not), will dstroy the defender and a large portion of the world along with the aggressor. ... *Flexible War Plans.* We must not encase the President or the Commander of SAC in concrete. We need to have available a series of options during the very first minutes of the war in order to be able to react safely and surely to varying kinds of warnings and varying kinds of provocations. ... it is almost certain that the course of the war will reveal surprises. We must have the ability to react to those surprises."

Kahn gives examples of such "surprises". E.g., p529: a dictator in 1934 allegedly burned down his own Reichstag to generate the "excuse" to liquidate enemies, a democracy allegedly sank its own battleship Maine off Havana in 1898 to justify war against Spain, and at p28 Kahn gives the example that in his 14 January 1960 speech to the Supreme Soviet, dictator Khrushchev declared that if anybody attacked any socialist state in the world, e.g. Cuba or any South American

left wing dictatorship, Russia would launch a nuclear retaliation on the culprit. This particular threat became even more sinister and threatening in October 1962 when he secretly placed 42 IRBMs with megaton thermonuclear warheads into Cuba. Kahn also makes the point on page 199 that in a nuclear war Russia would be likely to air burst weapons to minimise the risks of escalation to radiological warfare - just as Hitler decided not to drop his 12,000 tons of nerve agent tabun on cities, to avoid escalation to gas war - and to maximise the more predictable blast effect: "If the Russians ... air burst their weapons (which is he most efficient way to use a weapon against a soft target), there will be no local fallout effects." The entire "arms control and disarmament" movement is driven by 1930s style exaggeration lying propaganda, so denies any possibility other than "knockout blows" on day 1, completely disarming both sides by all-out ground burst wars with maximum fallout radiation. But evidence exists from World War II that this is not what happens: the knockout blow failed to materialise, as did the gas war prophecy, so as Kahn writes on p319:

"Therefore, one thing that we should try to get out of World Wars I and II is some orientation about what kinds of actions, situations, and capabilities are possible or plausible in the future." (The anti-nuclear folk do the exact opposite, repeating 1920s-30s Nazi style "anti-war" propaganda! Yes, you can always have "peace" aka coercive slavery if you surrender your freedom by lying about weapons effects and disarming yourself. There is nothing good about fanatical lying.)

In summary, Kahn's *On Thermonuclear War* rejected M.A.D. (Mutual Assured Destruction, aka pure type 1 deterrence) because it fails to deter the major provocations (not direct attacks on UK and USA, but attacks on allies/military outposts) that set off each World War, and called for flexible response instead, to deter escalation of invasions and conventional wars to world war, the basis for 1914 and 1939. OTW begins by rejecting the notion that world government or policemen can solve the problem. In world government, you don't end war, you just rename world wars as civil wars; plus you get more wars (labelled rebellions or insurgency, perhaps) as shown by the history of various world-scale empires in the past. Police to end war? Policemen don't prevent crime. The UN Peacekeepers don't prevent or even end wars. If you made them strong enough to do so, you would just have an international army fighting wars. Wars wouldn't end, no matter what you called them. In addition, you then have the veto problem, or if not, then the problem that the aggressors will (as in the 1930s with the League of Nations) simply withdraw membership. Then you're back to the same wars, maybe renamed - as per Putin's doubletalk - as "special military operations" (as if changing the name of war, somehow changes the fact). Finally you have the "cover themselves with shame" policy of the 14 January 1960 Khrushchev speech: "If one side violates the agreement if assumed, the instigators of this violation will cover themselves with shame, they will be condemned by the peoples of the whole world." Kahn points out on page 249 of OTW that this "cover themselves with shame" deterrent was disproved by Khrushchev himself on 2 December 1959, when he brutally dismissed the 1956 massacre by hos own troops of Hungarian freedom fighters: "international reactionary circles still seek to have the so-called Hungarian question discussed in the United Nations. Let them have it as a souvenir, if this consoles them." Dictatorial thugs who start wars are simply not worried about shame any more than "peaceniks" who lie about nuclear weapons effects to undermine deterrence are ashamed of themselves or deterred by condemnation. They don't care. If moral responsibility were a factor, there would never be any racist genocidal wars, extermination camps, and crime. You have to avoid muddling up heavenly dreams and the harsh reality of life on this planet.

Doomsday propaganda gibberish is actually the result of "Doomsday Clock" nonsense published by *Bulletin of Atomic Scientists* and other propaganda mass media, not Kahn who debunks it! E.g. aside from coming up with the cobalt bomb Doomsday Machine in 1950, Leo Szilard also published delusional alternatives to nuclear deterrence in the October 1955 *Bulletin of Atomic Scientists* article "Disarmament and the Price of Peace", asserting:

"Russia and America could each take perhaps the following position: We need not engage any longer in the kind of warfare in which people are killed ... We shall simply list all such areas, with a price tag ... and we shall specify that if Area No. 1, for instance, is invaded we shall demolish five medium-sized cities of the 'enemy'." [This seems similar to the plot of the February 23, 1967 Star Trek episode, "A Taste of Armageddon". Like all arms control and disarmament nonsense, it's unrealistic BS. While the *Bulletin* published endless crap, it had the hypocrisy to sneer at anyone who told the truth and really reduced the risk of war!]

ABOVE: Gas war knockout blow for appeasement propaganda as depicted vividly by H G Wells in his 1936 film *Things to Come.* Nobody in the mass media would do anything about such propaganda except to praise it, wrongly claiming that such hysteria to undermine the credible deterrence of war was somehow a good thing that would somehow prevent world wars by informing everyone of Wells' BS war fantasy. But it was similar to knock-out blow delusions that preceded - and encouraged - World War I. Similar fictional BS saturated the mass media throughout the Cold War. As a result, reality has been replaced by BS propaganda and made "unthinkable", which is why the same old delusions lead to repeated, unnecessary wars and exterminations. At some point, the truth has to make a comeback. We tell the truth at www.nukegate.org There's a sad story to be told about H. G. Wells' "antiwar" gas knockout blow propaganda in the 1936 film, probably put best by the author Colin Wilson in the Introduction to his *Criminal History of Mankind:*

"I was about twelve years old when I came upon a bundle of magazines tied with string in a secondhand bookshop - the original edition of H. G. Wells's Outline of History, published in 1920. ... In 1946, Penguin Books republished ten volumes of Wells to celebrate his eightieth birthday, including the condensed version of the Outline, A Short History of the World. It was in this edition that I discovered that strange little postscript entitled 'Mind at the End of Its Tether'. I found it so frustrating and incomprehensible that I wanted to tear my hair: 'Since [1940] a tremendous series of events has forced upon the intelligent observer the realisation that the human story has already come to an end and that Homo sapiens, as he has been pleased to call himself, is in his present form played out.' And this had not been written at the beginning of the Second World War - which might have been understandable - but after Hitler's defeat. When I came across the earlier edition of the Short History I found that, like the Outline, it ends on a note of uplift: 'What man has done, the little triumphs of his present state, and all this history we have told, form but the prelude to the things that man has yet to do.' And the Outline ends with a chapter predicting that mankind will find peace through the League of Nations and world government. (It was Wells who coined the phrase 'the war to end war'.)



"What had happened? Many years later, I put the question to a friend of Wells, the biblical historian Hugh Schonfield. His answer was that Wells had been absolutely certain that he had the solutions to all the problems of the human race, and that he became embittered when he realised that no one took him seriously. ... The Outline of History plays down the tortures and massacres; in fact, it hardly mentions them. ... Wells's view of crime was cheerfully pragmatic. In The Work, Wealth and Happiness of Mankind he spoke of it as 'artificial', the result of 'restrictions imposed upon the normal "natural man" in order that the community may work and exist.' He seems quite unaware that the history of mankind since about 2500 B.C. is little more than a nonstop record of murder, bloodshed and violence. The brutalities of the Nazi period forced this upon his attention. But it seems to have been the horrors of Hiroshima and Nagasaki, and the revelations of Belsen and Buchenwald, which convinced him that man was bound to destroy himself from the beginning, and that 'the final end is now closing in on mankind'." **The problem for H. G. Wells was the problem for most people and their leaders during the 1920s and 1930s: to get rid of weapons to therefore prevent war, to lead the world in doing so, to create a good example, and to trust in the League of Nations to condemn "warmongers" who prefer to trust in**



deterrence by threat of force. In other words, everything H. G. Wells stood for was debunked and the nuclear deterrent of 1945 was for him, as for most groupthink authority obsessed persons, bad news. Like idealists Woodrow Wilson, Neville Chamberlain and Stanley Baldwin, Wells wanted war to be ended with bits of paper, not the credible realist threat of annihilation (apart from the annihilation of the Vatican, the bombing of which is called for in his book Crux Ansata!).

DELUSION OF POPULIST ANTI-NUCLEAR BIASED PROPAGANDA HISTORY: THE FACT IS, EVERY WORLD WAR RESULTED FROM THE POPULAR MASS MEDIA KNOCKOUT BLOW (SHORT WAR) DELUSION, AND THE POPULAR MASS MEDIA DELUSION THAT WARS ARE RESOLVABLE OR UNTHINKABLE BECAUSE BOTH SIDES ARE RATIONAL DEMOCRACIES (in fact, the evidence below shows that stable democracies do not have wars, so this is fake): *this delusion encouraged the aggressors to invade in 1914 and 1939, safe in the belief that long wars were debunked by economic interdependence and the speed of action of incendiaries, high explosives, and poison gas bombs on cities!* Herman Kahn, *Thinking About the Unthinkable,* Weidenfield and Nicholson, London, pp. 7-9:

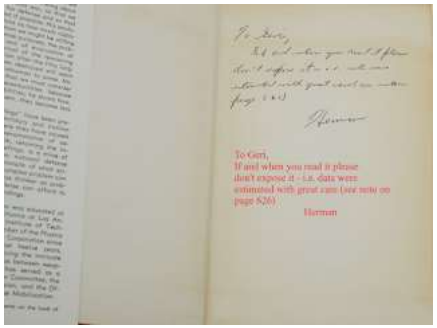
"**Some, most notably [CND's pseudo-historian of anti-nuclear arms race lying propaganda spin] A. J. P. Taylor, have even said that Hitler was not like Hitler, that further appeasement would have prevented World War II [this history basis is actually anti-history speculation, but still biases anti-nuclear "history" BS taught today],... If someone ... can convince you he is stark, staring mad and if he has enough destructive power ... deterrence alone will not work. You must then give in or accept the possibility of being annihilated ... in the first instance if we fight and lose; in the second if we capitulate without fighting. ... We could still resist by other means ranging from passive resistance of the Gandhi type to the use of underground fighting and sabotage. All of these alternatives might be of doubtful effectiveness against [the Gulag system, KGB/FSB torture camps or Siberian salt mines of] a ruthless dictatorship**."

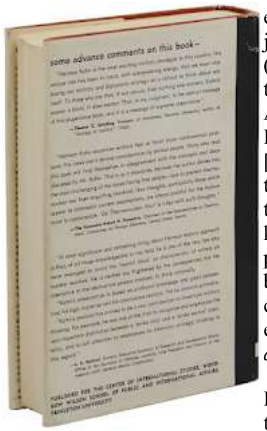
In other words, the situation today is similar to the 1930s, because of (not despite) all the contrary propaganda that the lessons of outbreak of the last way must be ignored to "make the world safer"! Anti-nuclear propaganda BS still claims that we should not learn these true lessons from the actual histories of world wars, and that Hitler and the most destructive and costly war and only nuclear war of history, WWII, is given undue attention. But WWII is a good analogy to the danger precisely because of the lying WMD gas war propaganda-based disarmament of the West which allowed the war, because of the attacks by Hitler's fans on civil defense in the West to make even the token rearmament after 1935 ineffective as a credible deterrent, and because Hitler has mirrors in Alexander the Great, Attila the Hun, Ghengis Khan, Tamerlane, Napoleon, Stalin, and all the rest of the war-mongers (particularly their "enablers" in the mass media, populist "science" fantasy, and populist "history", i.e. the thug dictators behind the mass indoctrination of folk with all the nuclear weapons and nuclear war effects lying evil war mongering propaganda today! Kahn explains on p. 173: "**Because history has a way of being more imaginative and complex than even the most imaginative and intelligent analysts, historical examples often provide better scenarios than artificial ones** ... [E.g. after WWI, populist anti-war propaganda dismissed the possibility of a repeated war triggered by escalation following the invasion of an ally, and instead insisted on the H. G. Wells style myth of immediate all-out knock-out blows using gas against civilian populations in cities; the eternally deluded mass-media overhyped myth designed to ensure a complacent failure of deterrence against the real threat!]"

"**One type of war resulting at least partly from deliberate calculation could occur in the process of escalation. For example, suppose the Soviets attacked Europe, relying upon our fear of their reprisal to deter a strategic attack by us; we might be deterred enough to pause, but we might evacuate our cities during this pause in the hope we could thereby convince the Soviets we meant business.**" - Herman Kahn's 1962 *Thinking About the Unthinkable,* Weidenfield and Nicholson, London, pp. 51-2.

"**Relocation of the population from high risk areas near military installations and the protection of the rest of the population against fallout could reduce nationwide fatalities due to fallout ...**" - James R. Schlesinger, U.S. Secretary of Defense, Annual Defense Department Report for Financial Year 1976. (Note the delusional propaganda against civil defense hidden - in plain sight - in the word "could". The reality is that Schlesinger had on 11 September 1974 testified to the U.S. Committee on Foreign Relations, Subcommittee on Arms Control etc., "the likelihood of limited nuclear attacks cannot be challenged on the assumption that massive civilian fatalities and injuries would result." However, even there, Schlesinger was promoting nonsense because his U.S. Department of Defense study *assumed that 45% of the population in a fallout area remained essentially unprotected in frame houses with a radiation protection factor of just 3*. In other words, essentially no protection. Other similarly delusional anti-civil defense propaganda by ACDA, discussed below, assumed that shelters giving a protection factor of 70 in reality would not be occupied very much after a nuclear attack, with most people stupidly going outside for hours each day, allowing the ACDA to reduce the "effective" protection factor by a factor of 7, so as to reduce a protection factor of 70 to just 10. This was also done in all U.S. Department of Defense civil defense studies. Hence, huge fallout casualties could be predicted by such faked assumptions about civil defense, in order to dismiss civil defense as a "waste of resources"! When Reagan's civil defense expert at Boeing Corporation, T. K. Jones, debunked this propaganda trick, the mass media launched deluded hate attacks on him personally, ignoring the technical arguments entirely. This is what happened to everyone who debunked gas knockout blow liars in the 1930s. Fake "pacifists" go away with it.)

"We must recognise that the stability we want in a system is more than just stability against accidental war or even against an attack by the enemy. We also want stability against extreme provocation [e.g. invasion of allies, which then escalates as per invasion of Belgium 1914, or Poland 1939]." - Herman Kahn's 1962 *Thinking About the Unthinkable,* Weidenfield and Nicholson, London, p. 53(footnote).





Kahn's 1960 *On thermonuclear war* is a set of three lectures, and he testified to Congress that negative "reviewers" such as Scientific American hadn't got past lecture 1 (a debunking of popular mass media 1950s exaggerations of nuclear weapons effects made by the arms control and disarmament lobby and by communists to undermine credible deterrence of war for their own agendas, which required war to keep in in jobs). Lecture 2 is war planning for credible deterrence, and Lecture 3 is an analysis of two real world wars and half a dozen hypothetical ones. Chapter VIII - The real past, begins with an analysis of WWI, where (p350) "both the military and political lessons of the American Civil War were ignored ... most people [led particularly by Sir Norman Angell's anti-war propaganda lies book "The Great Illusion"] ... argued that the economic interdependence of nations was so great that the sheer interruption of normal commerce would cause a collapse after a few weeks or months in much the same way that people argue today that if the A country (big cities) is destroyed [in WWIII], then B country (small cities, rural areas) must also necessarily collapse. Therefore, almost everybody expected the war of 1914 to be short ... the famous Schlieffen Plan ... called for them to destroy the French army in about 6 weeks, then move their army to the Russian front and destroy the Russians ... Both sides enormously underestimated the impact of the machine gun [this is false; the problem was such weapons were EXAGGERATED and instead of delivering the promised knockout blow, they led the enemy to adopt duck-and-cover trench warfare, thus slowing down - rather than speeding up - war, in other words what was "underestimated" was the fact that military technology would prevent rather than permit knock-out blows. Kahn does then go on to point out that de Bloch argued that everyone will be in trenches as a result of explosives etc, but de Bloch also falsely claimed that this would make war "impossible". In other words, nobody could predict reality. Human nature is beyond the kind of logic available to humans to predict accurately. Kahn goes on to point out that instead of grasping the truth, even during WWI, people kept on trying to achieve knock-out blows to speed up victory, e.g. poison gas, tanks, submarines, and air bombing. All these innovations were inplemented as cautions scientific experiments, alerting the enemy and losing the "factor of surprise", without achieving the knock-out blow promised. The other side were given the time to invent a defensive measure, or to launch counter-attacks of their own. After WWI, historians for "pacifism" tried to ignore the Schlieffen Plan and instead claim that the war was the result of an arms race mobilization accident and could have been prevented by disarmament and "settling differences peacefully without violence", thus leading to the peaceniks, encouraging and rewarding aggression, hence WWII.]" Kahn summarizes on p378 (italics his own): "*The whole history of the 1933-1939 period is a clear example of the failure of Type II and Type III deterrence*."

Kahn also debunks the use of strategic "ambiguity" as a deterrent, in the case of an aggressor who keeps testing your resolve: ambiguity worked *against* the UK in the 1930s where nobody would take the Nazi threat seriously until it was unambiguous (too late), and he also points out that even in 1914, deterrence failed because nobody wanted to use an unambiguous deterrent *until others had mobilized, at which time it obviously was too late!* E.g. Germany wanted unambiguous proof that Russia was mobilizing, before it mobilized! The UK's Liberal peacenik Government similarly refused to say what would happen if Germany invaded Belgium, thus keeping deterrence of that act weak/ambiguous, until it was too late! The whole point of nuclear weapons is that, being small, you don't need to turn out a million soldiers at your frontier to defend it, causing crisis instability of the 1914 type. You can eliminate the ambiguity that led to the invasion of Belgium in 1914 and of Europe in the 1930s! *Instead, the current nuclear "peacenik"-inspired insanity is a policy to try to make the nuclear deterrent as ambiguous as the conventional deterrents in 1914 and 1939, i.e. to engineer a failure, in which the enemy is encouraged to keep testing your resolve and pushing at your ambiguous deterrent to see how far they can go.* We're doing this in the Ukraine War: Putin says that anyone assisting Ukraine in attacking Russia is to be viewed as a enemy. We have gradually increased our support to Ukraine, testing how far we can go without triggering WWIII, thus exploiting Russian nuclear deterrent ambiguity. This strategy used to be called after mathematician Bayes' theorem, "Bayesian statistics", whereby you use information gained over time to alter your assessment of the likelyhood of something occurring. E.g. if you haven't a clue to begin with, you start by assuming arbitrarily that the probability of a nuclear war this year is 0.5 (because there are two alternatives, and you have no knowledge which is more likely), and you reduce the probability with each year that goes by without nuclear war breaking out according to the formula given by Bayes' theorem. There is a problem with this, however: Bayes' theorem implicitly assumes that you are dealing with a totally random event, i.e. that the probability of occurrence per unit of time does *not* change (evolve) over time! You're only quantifying your *ignorance of an assumed fixed probability* on this naive assumption, and you're making the implicit assumption that there *is no mechanism that ensures that the true probability (as opposed to your evolving estimate of it) will really increase over time, so a crisis will escalate into nuclear war sooner or later due to deterioration of your deterrent (e.g. physical corrosion or gradual erosion of political will to use it, causing a gradual failure of credibility of the deterrent to prevent enemy provocations, etc.).*

In other words, if you tried to use Bayes' theorem to "predict" the chance of your car going wrong or a person dying, your estimates of the calculated probability of failure will FALSELY decrease year after year before the failure occurs, when in fact they must be increasing, because there *is a cumulative, increasing failure mechanism possible for such mechanical or biological systems, whereby the actual risk of failure will increase as time passes, if maintenance is not done.* So people will, using Bayes' theorem, become complacent with a deterrent that works well, and start arguing that it is a waste of money to maintain it, simply because it has not failed so far, as if that is evidence proving it is very unlikely to go wrong: "If it ain't broke, don't fix it!" But in reality, like a 100 year old person, or a car with 100,000 miles on the clock, common sense should tell you that the risk of failure may not really be decreasing with time, and *cannot wait for a nuclear deterrent to break down, before maintaining it, upgrading it, or replacing it!* E.g. the UK "deterrent" policy for years since abandoning its tactical WE177 nuclear bombs in the 1990s under pressure from the USA, was to have 4 Trident subs; but the threat from a host of enemy states is increasing, so the credibility of our deterrent is being eroded, just as it was in the 1920-1930s, leading to failure of credibility and thus the destruction and slaughter in WWII. Related to this, populist exaggerations of the deterrent threat - to ridicule civil defense that makes deterrence credible, and thus force serious consideration of appeasement/arms control - also acts to make your own deterrent incredible, as Kahn points out on page 376 of OTW: the UK before WWII believed in a knockout blow of 50 physical casualties plus 150 mental casualties per ton of bombs (200 casualties/ton, 75% mental) dropped on the UK, when in fact with civil defense (shelters and masks to deter gas), casualties were lower by a factor of 100 (even when many people became complacent and just ducked and covered, rather than taking shelter in air raids). In other words, no matter how many gas or nuclear bombs you have stockpiled, if you don't have credible civil defense against retaliation (which means something that people understand will work, based on evidence that can survive enemy/fellow traveller type anti-civil defense propaganda attacks), then the enemy can call your bluff, as Hitler did. Rather than increasing deterrence, this "pacifist" backed exaggeration of offensive capabilities by the fake news "ridicule" of civil defense *played into enemy hands, and undermined deterrence, increasing the risk of war!* It's always been taboo to say this, because these fake "pacifists" have had powerful media fascists/fellow travellers supporting them (throughout history). On p378, Kahn points out that this stupid complacency

(partly due to official secrecy on the efficiency of weapons and civil defense countermeasures) was partly *financial at its root, since even as late as 1938, the UK allocated a budget of only about £300 million a year for defense, compared to £1,000 million a year being spent by the enemy, as Chamberlain had confirmed when Chancellor of the Exchequer, before becoming Prime Minister:*

"The longer they put off using their superior power, the less credible it became that it would ever be used. Finally, their power itself became inferior, so that even when its use was seriously threatened, the German government was no longer impressed. ... the British and French should have known that Hitler was very unlikely to stop at any reasonable point unless confronted with superior power and determination."











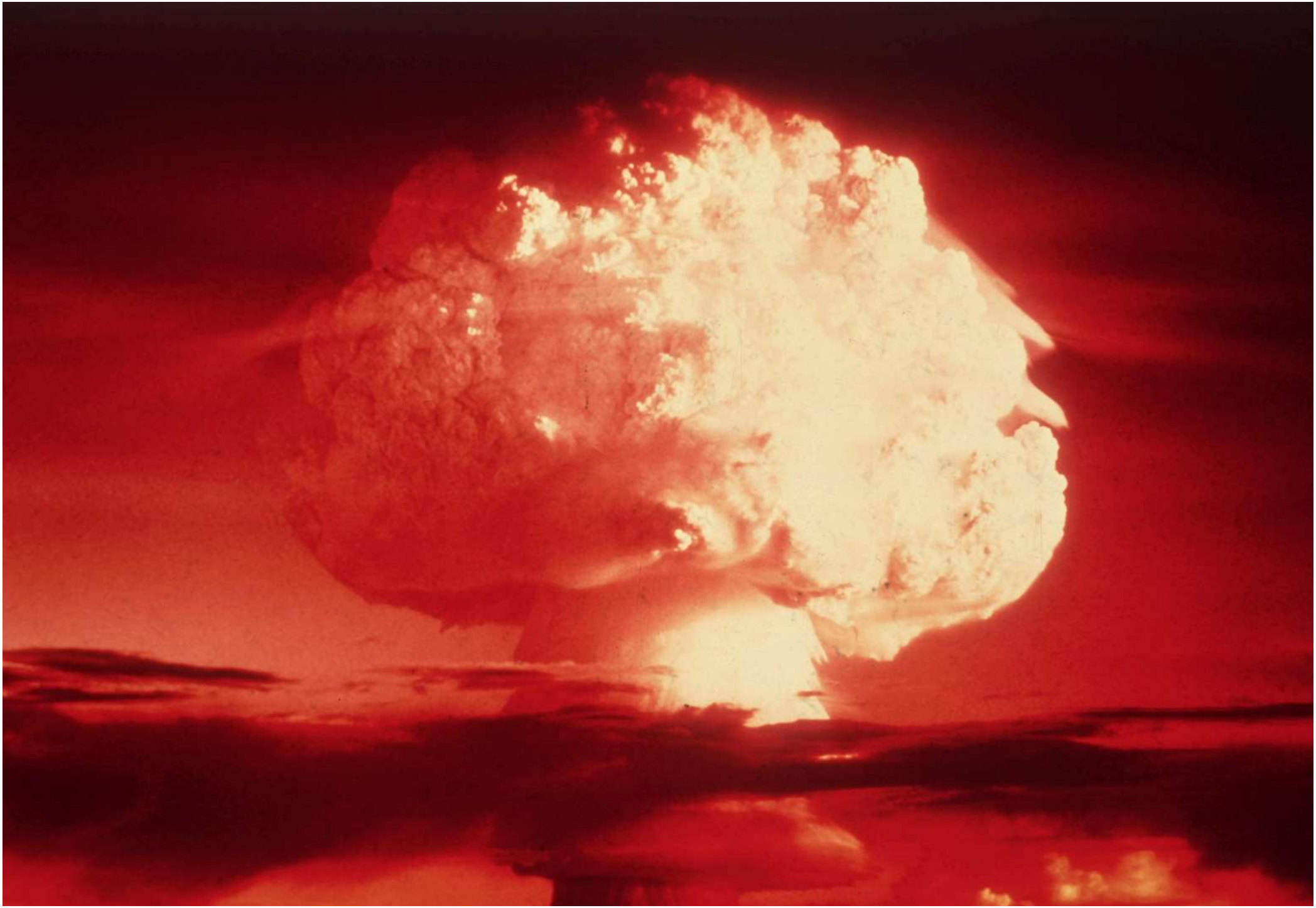
RIGHT: Mike device (note the rounded top AFTER the primary has been installed at the top, unlike the flat cover shown in the photo in Rhodes' book (and diagram) which was replaced by a rounded cover after the Sausage was filled with deuterium and the fission primary was installed on top of it. Firing party photo taken prior to leaving Eugelab Island.

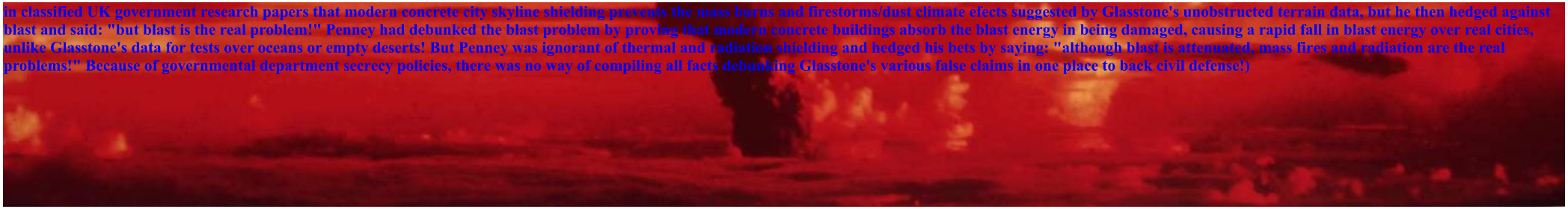
Mike Fireball with Nuclear Lightning (discharge of the natural potential caused by ionization due to the initial nuclear radiation).





ABOVE: the history of anti-nuclear hysteria stems from propaganda originating from the 10 megaton Mike nuclear test in 1952 regarding the crater size and the blast area over unobstructed test site areas. However, as we prove below, Penney debunked the blast argument by proving that the portion of the blast front which does destruction is rapidly depleted in energy by the very fact it is expending energy in causing destruction (something not present in an empty desert or ocean), and this is 100% predictable and not "an uncertainty best ignored" due to conservation of energy! This fact debunks naive nuclear damage scaling laws (which no longer scale with the cube root of yield once damage energy depletion on the blast and radiation is correctly taken into account), completely refuting the foundation of McNamara's minimal deterrence criteria! **Likewise, the cratering predictions by Glasstone using data on crater sizes in fragile coral are also absurdly exaggerated for strategic high yield weapons. In reality, the important and thus most credible deterrent uses of nuclear warheads are for ending invasions and wars, not trying to destroy modern concrete cities with "dual use" underground car parks/shelters, or to empty enemy nuclear silos for no purpose (their policy is to launch on warning in a major crisis, so what's the point targetting an empty silo). The history of strategic bombing thoroughly debunks any MAD notion that you can credibly deter a mad dictator by threatening the lives of civilians living in such regimes! Sadly, even Chuck Hansen, author of *US Nuclear Weapons* duped himself and Richard Rhodes (and their many readers) with the biggest ever lie about the 10 megaton Mike test: Neil O. Hines badly-organized book *Proving Ground: An Account of the Radiobiological Studies in the Pacific 1946-61* starts off by saying that one look at the the nearest islands (about two miles away from ground zero) led to the speculation that nothing could have survive on those islands, then later in the book disclosed the astonishing truth that rats in underground burrows *did* survive the blast and radiation and were healthy without mutations or cancer! Hansen and Rhodes wrongly quote Hines's ill-informed speculation that survival was not possible, and do not quote his factual-evidence finding that is the exact opposite! (Similarly, dad spoke to both UK nuclear testing government scientists George R. Stanbury and William G. Penney. Stanbury had debunked fire and radiation myths by proving**





in classified UK government research papers that modern concrete city skyline shielding prevents the mass burns and firestorms/dust climate efects suggested by Glasstone's unobstructed terrain data, but he then hedged against blast and said: "but blast is the real problem!" Penney had debunked the blast problem by proving that modern concrete buildings absorb the blast energy in being damaged, causing a rapid fall in blast energy over real cities, unlike Glasstone's data for tests over oceans or empty deserts! But Penney was ignorant of thermal and radiation shielding and hedged his bets by saying: "although blast is attenuated, mass fires and radiation are the real problems!" Because of governmental department secrecy policies, there was no way of compiling all facts debunking Glasstone's various false claims in one place to back civil defense!)



ABOVE: Anti-nuclear propaganda focusses on burned out areas of wood-frame housing, overwhelmingly due - according to an extensive survey of Hiroshima inhabitants in the SECRET CLASSIFIED USSBS report 92, volume 2, EXCLUDED FROM ALL UNCLASSIFIED VERSIONS AND GLASSTONE BOOKS - to *overturned now-obsolete breakfast charcoal braziers at 8.30am in Hiroshima, NOT to thermal flash ignition.* This photo is of a collapsed flimsy warehouse on Eneman Island at 13.1 miles from the largest Western nuclear test, 15 megaton Bravo in 1954. Note that the only fire on this island was due to an electrical short circuit, not thermal effects. The photo on the left of Bravo was





taken by an aircraft flying above cloud cover. Targets on the ground are shielded by intervening clouds and building skylines in real cities, which are not well modelled by deserts or atolls. Modern city-style brick houses simply did *not* burn down at nuclear tests, nor did whitewashed wooden houses, even when they were exposed to the fireball *without* any intervening city skyline shadowing:





Brick house after 47 kt Easy and 45.5 kt Item, Eniwetok, 1951 (exposed to 3psi from Easy). Excluded by Glasstone!

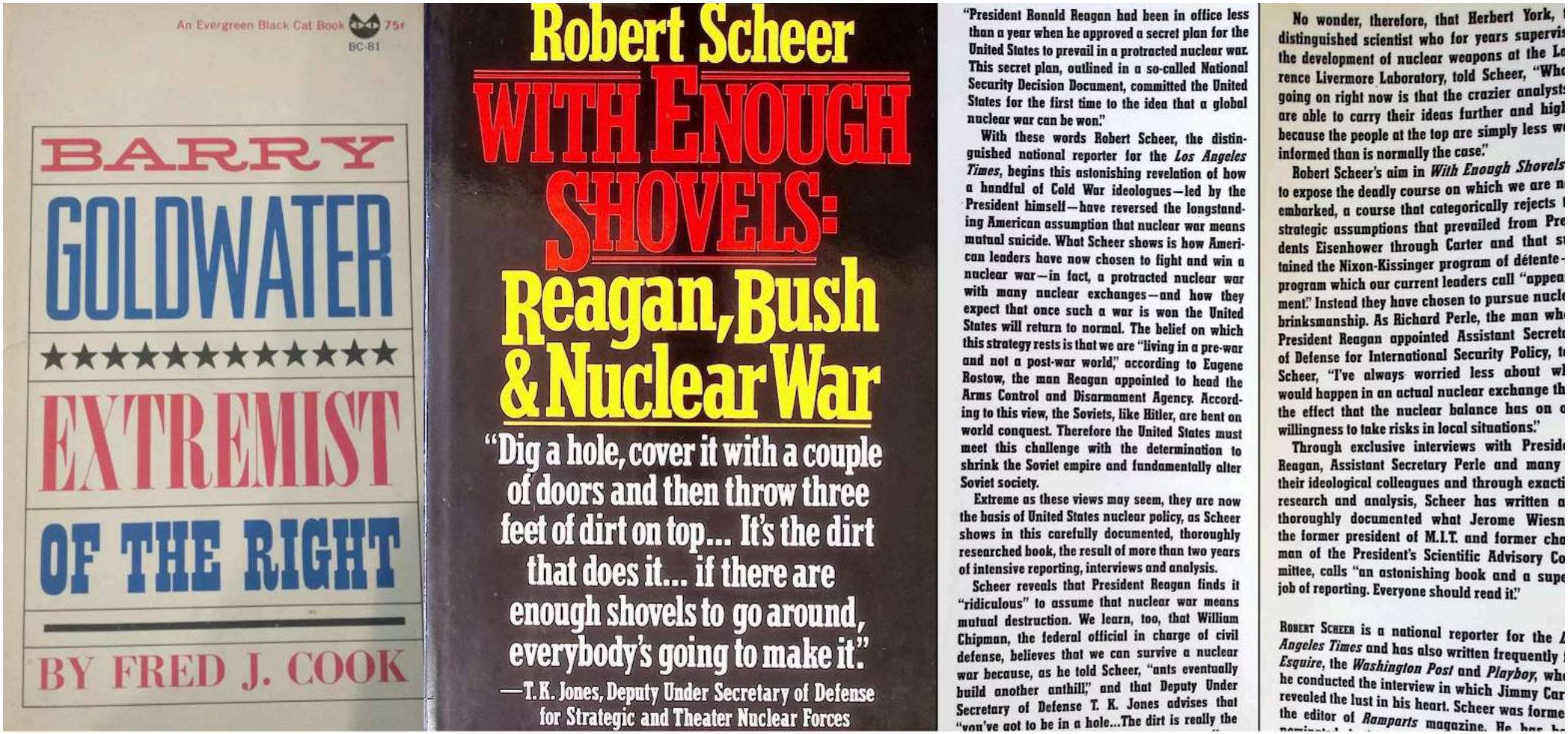


Project 3.4 TEAPOT building 31.1 A-2, PLUMBBOB-GALILEO

ABOVE: tree snapped off by nuclear blast at 6,000ft range during Operation Tumbler Snapper, Nevada, in 1952 (Project 3.3), but not ignited by the thermal flash.



On page 182 of "award winning journalist" (extreme left wing anti-nuclear propagandarist) Fred J. Cook's 1964 *Barry Goldwater: Extremist of the Right* (Evergreen Book, New York), the 1964 Republican Presidential Candidate Barry Goldwater is quoted arguing that the Ho Ching Ming Trail supply routes of the Vietcong can be stopped since **"defoliation of the forests by low-yield atomic weapons could well be done."** No reasons are given against this way to peacefully and safely avoid escalating the Vietnam War into the costly, deadly carnage of conventional warfare. On page 183, this book again attacks "**Goldwater's militant pronouncements about brinkmanship and defoliating the Vietnam forests ... one can hardly feel comfortable at the thought that here is the man to whom Americans might entrust the decision of peace or war and the custody of nuclear bombs**." Instead of discussing the hard facts on how nuclear weapons can end bloodshed and mass destruction by costly conventional war, the author uses precisely the anti-nuclear hysterical smear-mongering that Robert Scheer used later in his similarly bogus attack on Reagan's efforts to end the Cold War by increasing the credibility of our nuclear deterrent to take away any hope of Russian victory in WWIII. Both books (Cook and Scheer) are similar in focussing a lot of attention on "McCarthyism", with the authors claiming that ruthlessly rooting out suspected enemy agents in the government was undemocratic, even after the Fuchs and Cambridge Spy Ring scandals, *while hypocritically condemning the freedom of speech by those who oppose the extremist tyranny imposed from bureaucracy against progress in making the world peaceful and secure*. Reagan simply made the factual point that in an emergency you can save lives and "win" (i.e. not be exterminated into oblivion) a nuclear war imposed by enemy provocation, simply by evacuating those city folk who can't be sheltered easily to rural areas where they can prepare Cresson Kearny type fallout shelters if needed. In other words, exactly what the UK did on 1 September 1939, 48 hours before war (the mustard gas contamination threat in 1939 is analogous to the "fallout radiation" scare mongering today; note Russia has clean tactical weapons since - like Hitler with gas threats - it doesn't particularly want to escalate into radiological warfare retaliation). Scheer simply ignores all the scientific evidence for this, just as Cook ignored all the evidence for the use of nuclear weapons to deter and stop insurgency with fewerer casualties and costs than conventional warfare. *The correctly scaled "equivalent megatonnage" of such conventional wars involving millions of conventional bombs is equivalent to nuclear wars involving thousands of warheads; please read on for a technical debunking of populist media fake news exaggerations, e.g a megaton of conventional weapons in WWII caused casualties and damage equivalent to hundreds of megatons of nuclear weapons, when scaling correctly.* But the usual ranting, lying anti-nuclear "card playing" political "virtue signalling" propaganda keeps on coming with less and less impact, working against Goldwater in 1964 (probably largely because Johnson was wrongly seen as a member of the Kennedy tribe, having been his Vice-President), but failing in the hands of the Carter-fan club opponents of Reagan and, recently, also failing to prevent the election of Trump. As for Trump, the hate attack on Goldwater in 1964 included fake news claims of racism (Goldwater's family were Polish Jews) and trigger-happy dangers: "The headboard of Goldwater's bed looks almost like the instrument panel of a jet bomber" (Cook, p16), "From the start, Barry was in many respects a problem child, a little hell-raiser. He



In the 1964 election, Johnson won over Goldwater's call for nuclear deterrence to end war by calling Goldwater a right-wing extremist. Johnson dropped megatons of Vietnam losing the war. Carter's folk tried to repeat Johnson's "PR trick" against Reagan

was a bundle of physical activity, adventurous, combative, an incorrigible prankster. ... purloining his friends' bicycles and hiding them ..." (Cook, p30), and aged 9 he used his mother's revolver to celebrate 4th July: "... Barry stole to his mother's bedside, carefully extracted the revolver without disturbing her, pointed it at the porch roof and blazed away. The barrage jolted the entire neighborhood ..." (Cook, p31), "Goldwater reads and re-reads Karl von Clausewitz's *On War*" (Cook p183). Oh dear! How shameful to have a sincere and human patriot stand for presidency! Why not just appoint a mad anti-nuclear bigoted robot to wreck the economy and lead the country into defeat? Most sensible folks grasp the old proverb: *fool me once, shame on you; fool me twice, shame on me*. By contrast, the allegedly anti-nuclear folk don't grasp anything other than lies that soon lose their attractiveness, even to the most gullible "idealists". They keep on launching delusional hate attacks based on lies against anyone who genuinely has new ideas, methods, or real dedication.

Due to the failure to use tactical nuclear weapons to deter escalation in the Korean War, 2,500,000 people were killed (including 36,000 Americans and 1,100 British) by conventional fighting and the key cities in Korea were flattened by 635,000 tons of conventional bombs (635 kilotons, including 32,557 tons of napalm) and half the country has had to live in a totalitarian dictatorship ever since. It is analogous to the way Hitler bombed Guernica, killing a third of the



population, on 26 April 1937 supposedly to support Franco in the Spanish civil war, but in fact sending out a message of intimidation to Britain and France! Similarly, in Vietnam the Vietcong were supplied by the 1,000 miles Ho Chi Minh Trail which was no wider than 40 miles, and used cover of rainforests (passing through Laos and Cambodia, well away from centres of population to avoid civilian casualties!). A few 99.9% clean 10 megaton air bursts like the revolutionary Dominic-Houstonic Ripple II test of 30 October 1962 would have literally **"blown their cover", and allowed the trail to be shut down to win the war, as proved by the 15 megaton Bravo test, where the Pisonia forest on Victor island at 11.8 miles got 2.4 psi peak overpressure, sustaining "Moderate damage" - that photo is in the 1957 Glasstone Effects of Nuclear Weapons, page 241 (shown below).** But secret "Jason" anti-nuclear propaganda enforced by anti-nuclear bigot Steven Weinberg and comrades simply lied (see declassified Jason report S-266) that the Vietcong could cut a path through a blown down rainforest with chainsaws at night without any problems moving the debris, being heard,

or seen! Also, he claimed the Vietcong could then use the chainsaw-cut route without being spotted or stopped by American helicopter gunships! Weinberg reportedly refused to sign off that secret "Jason" report unless it recommended banning tactical nuclear weapons to end the Vietnam war peacefully, by making up ridiculous lies about the efficiency of chainsaws to somehow move thousands of tons of timber. Weinberg even claims on page 13: "The main weakness of tree blowdown as a method of interdiction is that a tree can only be blown down once." It only needs to be blown down once. You're creating a barrier 20 km wide at any point along a 1,000 mile trail, which you can then focus resources on to halt supplies getting through! You don't need to blow trees down more than once! If somehow they managed to cut a path through the 20 km of blown down debris to allow any significant movement of supplies, you've got the rest of the 1,000 mile long trail to repeat the trick on! The Vietcong would cheaply be defeated this way (contrary to the lying weasel words of the thugs supporting them in secret Jason reports). RESULT: over 7.6 megatons of conventional bombs were dropped in the Vietnam War by the USAF (including botched attempts to conventionally - or chemically with Agent Orange - shut down the Ho Chi Ming Trail in Laos and Cambodia), with the result that 3,300,000 were killed, but the war of attrition was lost due to the inflation of the American economy caused by the immense expense of conventional warfare ($139 billion was spent on that war by US DOD). (No wonder, with arrogant bigoted stupidity like this, that Weinberg's Standard Model contains elementary errors in electroweak symmetry as we have pointed out, and he also promoted quack superstring theory nonsense entirely disconnected with reality in his textbook, without understanding the key quantum gravity evidence. It may not a coincidence that a lot of aloof "quantum field theory" bigots are also smug lying self-serving world war enginnering "disarmers" who don't give a damn about reality.)

ABOVE: chemical Agent Orange failed to blow the cover of the Ho Ching Ming Trail in Vietnam, but caused toxic pollution. Critics of the war claim that South Vietnamese army recruits "mostly" had full time civilian jobs and were just soldiers "on paper", giving their salaries to their corrupt commanding officers in return for permission to avoid training, and just turning up at base for uniform parade once a week! Nevertheless, the abandonment of Vietnam to communists triggered off a wave of communist insurgency throughout South America, and then escalated the Cold War when Russia invaded Afghanistan. As Lawrence of Arabia said, counterinsurgency is too often like "cutting soup with a knife", e.g. the notorious battle for "Hamburger Hill" in Vietnam involved a victory at the price of massive casualties, only to be abandoned a few days after being won. The only way to actually win any kind of peace against insurgents is to cut off their logistics supplies by blowing their cover at specific points on supply routes, which can then be policed. In Malaya, the UK did this by controlling food supplies, but the failure to stop the Ho Ching Ming Trail allowed insurgency to persist in Vietnam, leading in April 1969 to 543,482 Americans in Vietnam following the Vietcong's Tet Offensive of 1968. The West simply can't afford the costs of such conventional wars, especially when they lead to failure. Negotiations with the enemy are no substitute, any more than those with Hitler in September 1938 at Munich, as was seen in Vietnam 1975 and Afghanistan 2021: they will sign any piece of paper promising whatever you want to get you off their back, then when you pull out, they renegade on the deal. Others see how weak you are, and then you get the copycat "domino effect" (e.g., Putin invading Ukraine 2022, Hamas invading Israel 2023; and the wave of commie invasions following withdrawal from Vietnam, e.g. insurgency everwhere including the Russian invasion of Afghanistan which finally ended the delusion of Cold War détente). Negotiations even between UK and USA led to the opposite effects, e.g. see pp5-6 of "International negotiation - American shortcomings in negotiating with Communist powers - Memorandum prepared at the request of the Subcommittee on National Security and International Operations" (pursuant to S. res. 311, 91st. Cong.), US Senate, Committee on Government Operations, 1970 (https://babel.hathitrust.org/cgi/pt?id=hvd.32044059331991&seq=1): "In 1958, when the test ban negotiations started, the United Kingdon was the only country, apart from the Soviet Union and the United States, that had tested nuclear weapons. At that time, the U.S. Government felt it was important that the United Kingdom participate ... At any rate, the British Government took full advantage of this American desire to have them included by arguing they culd not agree to stop testing unless they received American assistance for their weapons development ... Thus it came to pass that the first contribution of the test ban negotiations was to ENHANCE nuclear proliferation. This amendment in the Atomic Energy Act, favoring the British weapons development, became a spur to other countries ..." (This claim by Dr Fred Ikle is in fact technically counter-factual regarding USA-UK interchange, because in fact the USA in 1958 obtained extensive data on UK thermonuclear tests with spherical secondary stages of great use to its own development of "Tuba" etc for compact SLBM and ICBM warheads; and only got one cylindrical secondary design of use from the USA in return, the B28 which the UK produced as "Red Snow", see https://vixra.org/abs/2312.0155 for the technical details.)



Philip J. Dolan, DNA-EM-1

Chapter 14

(Secret): DAMAGE TO MILITARY FIELD EQUIPMENT

INTRODUCTION

One of the primary uses of nuclear weapons would be for the destruction of military field equipment. This chapter describes how

[redacted] the total impulse is represented by

$$I_T = A\left[B + C\,(W^{1/3})\right],$$

where A is the area of the face of the cube normal to the blast wave, B is the overpressure contribution to the impulse, and C is the dynamic pressure contribution to the impulse. Thus, the contribution to total impulse from overpressure remains constant, while that from dynamic pressure increases as the cube root of the yield. For very low fractional kiloton yields, the loading is highly impulsive with most of the load coming from the overpressure contribution. As the yield increases, at a constant scaled HOB and ground distance, the total impulse also increases, with an increasing portion resulting from the dynamic pressure contribution.

most damage caused to non-shielded targets by higher yield weapons results from the translational effects of dynamic pressure. Since shielding can reduce translational effects substantially, it can be quite effective as a protection from large yield weapons. Damage to shielded targets results largely from overpressure effects, for which damage distances scale as the cube root of the yield ($W^{1/3}$), while damage to unshielded targets results largely from total impulse effects (including those of dynamic pressure), for which damage distances generally scale as $W^{0.4}$. The effects of shielding are illustrated in Figure 14-9, in which damage distances for shielded targets have been scaled as $W^{1/3}$, and those for unshielded targets by $W^{0.4}$.

14-2

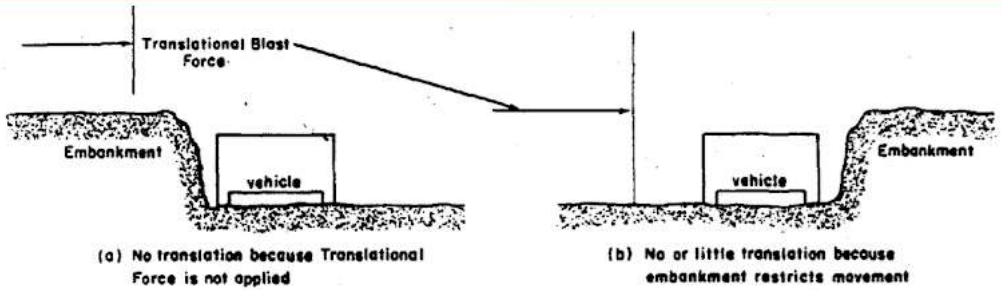


Figure 14-8. [redacted] The Effect of Shielding [redacted]

14-12

Figure	Equipment
14-13	Wheeled Vehicles,
14-14	Artillery,
14-15	Tracked Vehicles (Except Tanks and Engineer Heavy Equipment),
14-16	Tanks (Light and Heavy),
14-17	Small Arms,
14-18	Generators,
14-19	Locomotives,
14-20	Box Cars,
14-21	Supply Dumps,
14-22	Telephone Poles,
14-23	Water Storage Equipment,
14-24	Shielded Wheeled Vehicles,
14-25	Shielded Engineer Heavy Equipment,
14-26	Signal, Electronic Fire Control Equipment, Antennas, and Rigid Radomes
14-27	Wire Entanglements.

Wheeled Vehicles
- U.S. WW II 1/4-ton truck
- U.S. M-38 1/4-ton truck
- U.S. 2-1/2-ton truck
- U.K. scout car
- U.K. 1/4-ton truck

Artillery
- Towed U.S. 57-mm anti-tank gun
- Towed U.K. 25-pounder gun
- Self-propelled guns

Landing Vehicle, Tracked

Armored Personnel Carrier, M-59

Construction Equipment
- Crawler tractor
- Road grader

Since contents of supply dumps generally are resistant to crushing forces, an overpressure level of 30 psi is recommended for shielded supply dumps. A dynamic pressure of 5 psi is recommended for unshielded supply dumps.

14-10 Fire Damage [redacted]

[redacted] Damage to equipment by fire is refer to in some damage reports. Although some occurrences have been noted, they involved o a very small percentage of the equipment posed. Most fires appeared to be secondary nature, that is, they were not started by dir thermal radiation ignition. Two equipment ite were burned during nuclear tests under expos conditions in which they could have recei virtually no thermal radiation. In addition 1/4-ton truck exposed at a 100-ton high ex sive test (in which thermal radiation was r ligible) also burned.

[redacted] The damage to a 6-kVA generator posed on a U.K. test is particularly interesti In the damage report the notation is made, "I may have started from fuel from broken buretor spilling on hot muffler." U.K. prac at nuclear tests was to expose running eq ment, that is, the engines were running at time of the explosion. The six recorded oc rences of fires on U.K. tests represents a con erably larger percentage (about 10 percent) all U.K. equipment exposed than does the n ber of fires recorded on U.S. tests. Since may be due to the U.K. practice of runn engines during a test, the incidence of second fires in an operational situation may be hig than the U.S. test data indicate.

[redacted] Although it is believed that most fire the U.S. tests were from secondary rather t primary thermal ignitions, the source of som these secondary ignitions is not clear. The 1/4-ton trucks that burned on one U.S. test w believed to have been ignited by burning asph In one case of a tank exposed to a very low y burst, personnel reentered the area of the b shortly after detonation, approaching wit 2,000 ft of ground zero at H + 1 hour. smoke or open flames were observed. Howe approximately 1/2 hour later some smoke



M46 Tank at 1500 ft from 47 kt Greenhouse-Easy nuclear test, Eniwetok Atoll, 1951

ABOVE: Ontos aka M-50 wrecked by 74 kt Hood blast precursor, during project 2.4 of Operation Plumbbob. SOURCE: Robert C. Tompkins, C. Weaver, and G. Peterson, *Neutron and Initial Gamma Shielding, Operation Plumbbob Project 2.4,* Weapon test report WT-1413, U.S. Army Chemical Warfare Laboratories, AD/A995 035, 1957: "The shielding characteristics of M-48 tanks, Ontos vehicles, and hemispheres of standard and plastic laminated tank armor were studied during Shots Franklin, Lassen, Wilson, and Hood. ... The neutron inside/outside dose ratio in the M-48 tank varied from 0.28 to 0.59 ... The neutron inside/outside dose ratio for the Ontos vehicle was about 0.58 ... An M-48 tank crew can be killed by initial nuclear radiation from a tactical nuclear weapon at ranges where the tank sustains no blast damage. The only observable residual activity induced in tank armor was Mn-56 (half life = 2.58 hours); the dose delivered to the crew by residual radiation was insignificant compared to the initial radiation. The plastic-laminated armor apparently reduced the measured neutron dose twice as effectively as the standard armor, but the spectral data suggests that all the neutron dose may not have been measured." (Note: these were all essentially fission tests with ~1 Mev neutrons; the neutron bomb uses D+T fusion to release far more penetrating 14.1 Mev neutrons.)



Operation Plumbbob, Project 2.4, Neutron and Gamma Shielding, Ontos vehicle 1 overturned by blast precursor from 74 kt HOOD (106mm SPG, aka M50 tank)

There's an excellent and very personal account of this controversy in section H, "Project Vista", of chapter 5 of Lt-General James M. Gavin's 1958 book *War and Peace in the Space Age* where Gavin describes in detail his involvement in the Korean War background to "Project Vista", the major 1951 study of tactical nuclear deterrence of world wars, which developed into a war between the US Air Force strategic bombing deterrence advocates like Norstad and LeMay and the former wartime Los Alamos director, J. R. Oppenheimer, who was a very hard line proponent of ending wars using tactical nuclear deterrence, which really got to people like Teller and also Generals Norstad and LeMay in the USAF, who were obsessed with strategic nuclear deterrence (bombing cities, not deterring invasions; thus the key reason why tactical nuclear effects aren't in the Glasstone book *The Effects of Nuclear Weapons* whose unclassified contents range in 1957 was dictated by the strategic deterrence supporter US Atomic Energy Commission Chair, Lewis Strauss):

"Unfortunately, the early enthusiasm of the Air Force began to wane when it was realised that increasing emphasis on tactical air support and tactical airlift would conflict with Air Force views on strategic air power. At the same time, the Air Force began to suspect the views of Dr Oppenheimer. Earlier he had opposed the development of the thermonuclear bomb and now he was recommending a diversion of our nuclear resources to the tactical battle. ... This ... ran contrary to the basic theory of the strategic air power enthusiasts; that an all-out air offensive was the only sound tactic, and any diversion to defense was a waste. Dr Oppenheimer's work with Vista came under close scrutiny. ... *In November 1951, at a Vista conference at Caltech, Dr Dubridge presented a preliminary draft of its proposed report, including a chapter that Oppenheimer had written. It produced an explosion in the Air Force. Oppenheimer had transformed Vista into an exercise for rewriting US strategy - an exercise introduced by a veiled suggestion the Air Force doctrine was based upon the slaughter of civilians. ... Oppenheimer had proposed that a substantial part of the atomic stockpile should be diverted from SAC [LeMay's Strategic Air Command] to the direct support of the ground battle. ... The objective, as stated in Vista, was 'bringing the battle back to the battlefield.' In December of 1951, Oppenheimer, Dubridge and Lauritsen went to Paris and talked to Eisenhower. Norstad entered an uncompromising dissent to the Vista report. [Footnote reference: "The Hidden Struggle for the H-Bomb", Fortune, May 1953, p109.]* About a year or so later, I mentioned the Vista report to General Norstad and he used strong langauge in his denunciation of it. ... Unfortunately, Dr Oppenheimer was in trouble, and his participation in Vista added to the aura of suspicion with which the Big Bomber advocates were now surrounding him. As *The Reporter* expressed it in an editorial some years later, [December 26, 1957]: *[Oppenheimer's] urging that ways be found to bring war back to the battlefield was considered preposterous if not treasonable. ... There was something quite*



Tank decontamination after nuclear test, Nevada, 1951. (J. R. Earl, Operation Jangle, Project 6.2, Decontamination and Protection of Lan

sinister in a scientist who concerned himself with defense as Oppenheimer did. ... The Vista report was submitted to the Secretaries of the several services in February of 1952. It has never been officially approved." (SOURCE: pages 133-4 of the 1959 UK edition of Gavin's *War and Peace in the Space Age*.)

targets and vehicles, weapon test report WT-1400, USNRDL, June 1957.

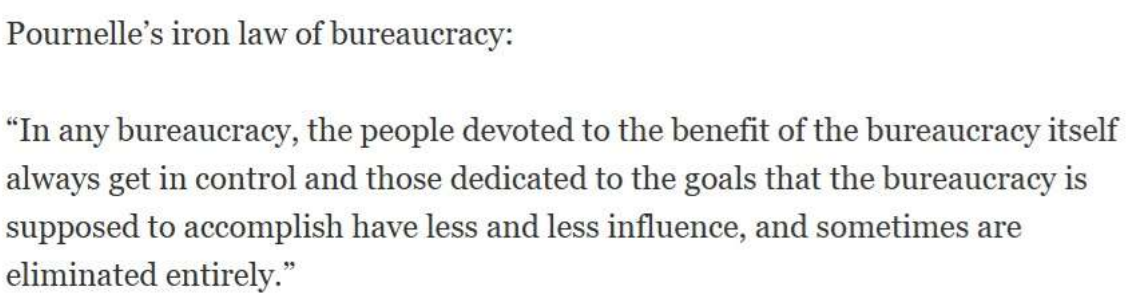
To emphasise this point: certain well-meaning military elements (like Norstad and LeMay of SAC) and certain well-meaning scientists (like Teller) put the boot into Oppenheimer's secret plan to focus on tactical nuclear deterrence of the invasions that set off both world wars. Instead, they went along with the incredible deterrent, called by Dulles "massive retaliation," or by Herman Kahn "Type 1 Deterrence", which failed in 1914 and in 1939. What we need is a way of deterring or stopping invasions that spark wars. Merely deploying tactical W79 neutron bombs in the 1980s brought out mass protests by Russians and fellow travellers, *which proved it was a credible deterrent*. Russia stopped further invasions in this period, and the USSR collapsed (after a few more Western defensive kicks, including SDI/Star Wars advanced ABM defense propaganda). Massive retaliation, by contrast, was a failure in WWII according to the US Strategic Bombing Survey, and is riddled with incredible ambiguity (it's an incredible deterrent that can't credibly deter the provocations that led to both world wars). Lt General Gavin, in the US Army, along with General Maxwell D. Taylor, masterminded President Kennedy's "flexible response" deterrent policy. This was undermined by the unilateral disarmament of all dedicated tactical nuclear weapons in 1992, to appease "arms control and disarmament" lunacy, itself due to Glasstone's failure to include the neutron bomb in *The Effects of Nuclear Weapons*. This has to change if we are to have peace.

Just in case you think that Lt General Gavin's account of tactical nuclear weapons politics above is "theoretical opinion" by a desk-bound bureaucrat, let's add a bit more context from his book, Chapter 5: *Combat is a Crucible,*. Gavin on 9 July 1943, as Commander of the 505th parachute Combat Team, spearheaded a 3,000 strong airborne invasion of Sicily, which aimed to secure the airfield and beaches 6 hours prior to the main amphibious landing. At the last moment, 35 miles/hour winds scattered the paratroops over rugged landscape, their carbines jammed in combat, and the usual "fog of war" quickly descended (note we quote here Gavin debunking the so-called "bazooka anti-tank alternative to tactical nuclear weapons" Hans Bethe-mythology; the reality is that bazookas are fine for overcoming dispersed tank invasions which are produced by us having a tactical nuclear deterrent to force the enemy to disperse their tanks rather than concentrate them into nuclear targets, but against concentrated tank assaults - which you get when you can't deter the enemy from concentrating force for an invasion because you don't have tactical nuclear weapons - bazookas are simply proved by war experiembe to NOT be the quick-fix alternative to tactical nuclear weapons that compulsive liars claim them to be):

"Now, 24 hours later, I surveyed the results of the first day's fighting. As well as I could tell, it had been an absolute shambles. The regiment was scattered like chaff in the wind, and possibly destroyed. ... It had been a hard day ... First, there was the inadequacy of our weapons. It is nothing short of homocidal to send American young men into combat with weapons not up to the job that confronts them. We needed a more reliable, faster-firing hand weapon than the carbine. And above all, we needed a tank killer ... Next, training had to be more realistic, so tough and exacting that combat would be a welcome relief. ... George Patton's last words to us before we left Africa came home with meaning: 'No dumb bastard ever won a war by going out and dying for his country. He won it by making some other dumb bastard die for his country." ... The bazooka rockets were bouncing off the tanks and the tanks were then chewing the troopers to pieces. The next day we actually buried some troopers with pieces of bazooka ground into them by tank tracks. We captured one tank by grenading the crew when they came out ... The tank had four bazooka hits on it, none of which penetrated. ... In their post-war account of the Sicilian fighting, the Germans reported their first capture of a bazooka. They sent it back to Germany, tested it, found its defects and corrected them, and went into production on an improved model. When we landed in Normandy less than a year later, we were met with a large bazooka, about 3.5 inches in diameter. We were still equipped with the small 2.36-inch size. As a matter of fact, our infantry was still equipped with the 2.36-inch bazooka seven years later, in July of 1950, when it was attacked by Russian T-34 tanks manned by the North Koreans. ... once again ... the rockets were bouncing off the tanks. ... There are numerous examples of weapons ... being delayed because the individuals who have funding control do not, or simply will not, understand the need of the fighting man in the field." (Quote: pages 69-75 of the 1959 UK edition of Gavin's book. I don't need to say that the final sentence here might as well have come out of President Zelensky's mouth a minute ago, regarding the supply of weapons to Ukraine after Russia's invasion. Will they ever learn?)

Regarding war crimes, Lt General Gavin also participated in the paratroop invasion of mainland Europe including the liberation of a concentration aka extermination camp near Ludwigslust, Mecklenburg (*War and Peace in the Space Age*, UK edition, 1959, page 197): "It seemed incredible that man could be so inhuman to his fellow man, and to all of us who liberated that camp it will remain forever in our memories as a symbol of totalitarianism. If there ever had been doubt about what we were fighting for, at that moment it was removed forever from our minds. It was to rid the earth of man's inhumanity to man, to protect and foster the way of life of free men, and, if necessary, to fight for that way of life. It is too bad that so many must see in order to believe. ... The way to freedom was not easy. Nature and recurring war combined to test our physical mettle and spiritual dedication." Gavin sums up the problem with the following very hard-hitting and politically-inexpedient quotation from Alexis de Tocqueville's *Democracy in America,* contrasting American "freedom" to Russian "imperialism" agendas:

"The American struggles against the obstacles that nature opposes to him; the adversaries of the Russian are men. The former combats the wilderness and savage life; the latter, civilization ... The conquests of the American are therefore gained by the ploughshare; those of the Russian by the sword. The Anglo-American relies upon personal interest to accomplish his ends and gives free scope to the unguided strength and common sense of the people; the Russian centres all the authority of society ... The principal instrument of the former is freedom; of the latter, servitude. Their starting-point is different and their courses are not the same; yet each of them seems marked out by the will of Heaven to sway the destinies of half the globe."



ABOVE: Pournelle's iron law of bureaucracy explains the fate of Oppenheimer, Kahn, Cohen, and all Western neutron bombs for credible deterrence of the invasions by concentrated force, which sparked all the World Wars. See the endorsement for testing the neutron bomb in the 1961 report (these declassified documents are linked **here** and **here**) to Kennedy on nuclear testing, with covering letter by General Maxwell D. Taylor, strong backer of tactical deterrence to end all wars (tested by Kennedy but **then opposed by "virtue signalling" loons like Lyndon Johnson with his lying "peace propaganda" anti-nuclear 1964 election "Daisy advert", causing megadeaths by conventional warfare napalming of kids and toxic chemical Agent Orange warfare, plus inflation of the US economy due to the cost, and defeat, sending a message of weakness, incompetence and defeatism to the enemy in the 1960s, thus causing the communist insurgency throughout the 1970s, hard facts which are simply "laughed at" or ignored by the conceited professional lying thugs of today's "arms control and disarmament" genocide campaign**):



On 21 October 1964 President Lyndon Johnson mimed a gorilla (RIGHT) while attacking Presidential Candidate Barry Goldwater's foreign policy as "dangerous". Goldwater was backed by Ronald Reagan who wanted nuclear deterrence of the Vietcong. Johnson instead guaranteed never to use nuclear weapons in Vietnam Result: megadeaths and hyperinflation.



Presidential ad: “Daisy” from Lyndon B. Johnson (D) vs. Bar...

~~Secret~~

TIER 10/6

Intelligence Memorandum

Office of Transnational Issues *30 August 2000*

(b) (1)
(b) (3)

Evidence of Russian Development of New Subkiloton Nuclear Warheads

CIA OTI IM 2000-011 X

public statements by Russian scientists and officials since 1993 indicate that the last nuclear warhead designed during the Soviet era was a device tailored for enhanced output of high-energy X-rays with a total yield of only 300 tons.

Judging from Russian writings since 1995 and Moscow's evolving nuclear doctrine, new roles are emerging for very-low-yield nuclear weapons—including weapons with tailored radiation output—and there are powerful advocates for development of such weapons in the country's military and weapons community.

The Moscow press claimed that a draft presidential edict from Yel'tsin called for "development of new-generation nuclear weapons."

APPROVED FOR RELEASE
DATE: OCT 2005

- Recent statements on Russia's evolving nuclear weapons doctrine lower the threshold for first use of nuclear weapons and blur the boundary between nuclear and conventional warfare. Very-low-yield nuclear weapons reportedly could be used to head off a major conflict and avoid a full-scale nuclear war.

- Senior Russian military officers have advocated the use of highly-accurate, super-low-yield nuclear weapons in Russian military journals such as *Military Thought* and *Armeyskiy Sbornik*. Deputy Commander in Chief of the Strategic Rocket Forces Muravyev stated that to have an effective impact across the entire spectrum of targets, strategic missile systems should be capable of conducting surgical strikes in a wide spectrum of ranges with minimal ecological consequences, which could be achieved with low-yield nuclear weapons.

Soviet Era Development of Tailored - Output Nuclear Devices

Russian development of nuclear devices tailored to enhance certain types of radiation output began during the Soviet period when "clean" nuclear devices—that is with reduced contamination from fission products—were needed for peaceful nuclear explosions (PNE's), according to statements by the developers. Clean PNE devices wer in effect the first enhanced-radiation devices produced in Russia and likely precursors o tailored-output devices developed later for both effects testing and weapons developmer which involved the same scientists (see appendix B for detailed discussion).

Enhanced-radiation weapons are designed to increase the effective range of gamma, neutron, X-ray, or electromagnetic pulse effects beyond the range of the airblast and fireball effects. Clean PNE devices are designed to minimize contamination from fissio products by maximing the fraction of the total yield produced by fusion. The two objectives are achieved by similar design approaches.

Having first developed tailored-output devices for PNE's, Russian scientists then began to investigate the possible weapons effects resulting from radiation enhancement. Russian scientists acknowlege that tests were conducted in the early 1980s to simulate th effects of a US neutron bomb on Soviet naval electronics

Alexander Shcherbina, a scientist from the Chelyabinsk-70 nuclear weapons design laboratory, told the Russian press in the mid-1990's that a nuclear test involving a subkiloton device tailored for high output of hard X-rays (high-energy X-rays) was planned for 1990 and would have been the culmination of a 20-year effort

Source: https://www.cia.gov/readingroom/docs/DOC_0001260463.pdf

(b) (3)

~~Secret~~

Intelligence Report

Office of Russian and European Analysis *22 June 2000*

Russia:

Recent press commentary also suggests that Moscow has rekindled plans to develop new warheads for the Ground Forces. A number of articles suggest that Russia is developing low-yield warheads with enhanced radiation that could be used on high-precision nonstrategic weapon systems.

Segodnya, claimed that some Russian officials were advocating a radical modernization of Russia's nuclear arsenal, including the creation of up to 10,000 new low-yield and super-low-yield tactical nuclear warheads as a counter to NATO expansion.

Extracts from Beria's № 163 final (28 October 1949) report to Stalin the 1949 Russian nuclear test data

Заключительный доклад Л.П.Берия И.В.Сталину о результатах испытания атомной бомбы

28 октября 1949 г.

Товарищу Сталину И.В.

Оптическими измерениями (произведенными при помощи специально сконструированных сверхскоростных фотокамер, дающих 600 000, 100 000 и 25 000 кадров в секунду, обычных кино- и аэрофотокамер, специальных спектрографов и других измерительных приборов, заранее установленных на дистанциях 1 800, 3 000 и 5 000 метров от центра взрыва)

(= Russia set up high speed cameras running at 600,000, 100,000 and 25,000 frames/second at 1.8, 3.0 and 5.0 km from ground zero to film fireball.)

Измерено, что поток теплового излучения взрыва составляет 4 % энергии деления всей массы плутония, составляющей заряд атомной бомбы, испытанной 29 августа 1949 года.

(= The bomb's measured thermal yield was 4%.)

Gamma doses (R) гамма-лучей		Neutron doses (R) нейтронного		Reflected blast, tons/m^2 Давление отраженной ударной волны	
300 м	420 000	300 м	27 000 000	200 м	2 900 т/м^2
400 м	155 000	400 м	38 000	250 м	1 560
500 м	68 000	500 м	12 000	300 м	770
600 м	32 000	600 м	4 200	400 м	225
700 м	15 000	700 м	1 800	500 м	82
800 м	7 800	800 м	800	600 м	48
900 м	4 200			800 м	21
1 000 м	2 300	1 000 м	180	1 200 м	12,1
1 100 м	1 260			1 800 м	6,2
1 200 м	700	1 200 м	35	3 000 м	3,1
1 300 м	410			5 000 м	1,9
1 500 м	140			10 000 м	0,9
1 600 м	80				
1 700 м	48				
1 800 м	30				

На основании принятой для взрыва тротила зависимости давления ударной волны от расстояния и веса заряда специалисты установили, что тротиловый эквивалент атомной бомбы испытанной 29 августа 1949 г. конструкции, равен 11 000 тонн тротила.

(= Bomb's BLAST yield partition was 11 kt of TNT.)

Действие взрывной волны на военную технику

Из всех видов боевой техники *наиболее уязвимой оказалась авиационная* (самолеты): из 53 самолетов, установленных на опытном поле на дистанциях от 500 до 4 000 метров, остались неповрежденными только 2 самолета.

Артиллерийское вооружение полностью разрушено в радиусе 250–300 метров и значительно повреждено в радиусе 500 метров от центра взрыва. *Радиус полного разрушения (полного выхода из строя) танков – 250–300* метров. Средним танкам в радиусе 350–500 метров нанесены сильные повреждения.

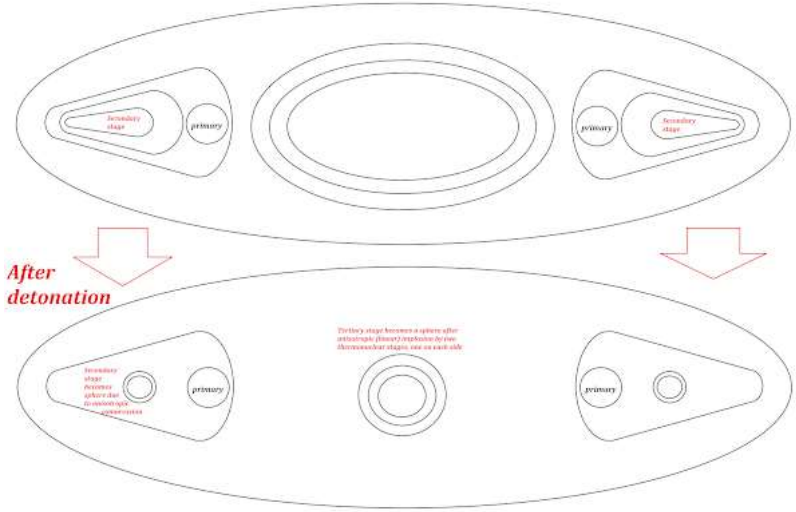
Воздушные линии связи сильно разрушены в радиусе до 1 000 метров, а кабельные линии, проложенные на земле, в радиусе 500 метров.

(= Military effects:
Out of 53 aircraft exposed at 0.5-2km range, only 2 survived intact.
Field artillery and tanks were destroyed at 250-300m and had significant damage out to 500m.
Ground-laid cables were destroyed out to 500m, and overhead cables were destroyed out to 1000m.)

***Animal Effects from Soviet Atmospheric Nuclear Tests*, by V. A. Logachev and L. A. Mikhalikhina, ITT Corporation, 2008, report ADA485845 (DTRA-TR-07-38):**

"The medical/biological studies involved about 8,000 experimental animals (camels, horses, pigs, sheep, dogs, rabbits, guinea pigs, white rats). The basic ways to solve medical/biological problems were by carrying out field experiments that used animals in open areas of test fields and in military and civilian protective structures. Animals were placed in more than 500 field and long-term structures, more than 200 war materiel items (tanks, armored personnel carriers, automobiles, aircrafts etc.), and residential brick and wooden houses."

Page 36: at the 1.6 megaton 1955 test, no thermal burns occurred to animals in houses or structures.



How elongated fusion stages are compressed into spheres for maximum fusion efficiency by anisotropic x-ray delivery



Very clean long pipe device for peaceful uses *(for insertion into narrow gas/oil boreholes)*

~~TOP SECRET~~ from Pres' book 3

THE WHITE HOUSE
WASHINGTON

7 August 1961

MEMORANDUM FOR THE PRESIDENT

Subject: Report of Ad Hoc Panel on Nuclear Testing

1. The subject report limits itself to the technical questions involved in a decision by the United States on the resumption of testing. However, the paper needs to be read with an eye to the military strategy which the United States intends to pursue in order to determine the attitude on testing which is most favorable to that strategy.

2. The USSR enjoys important military advantages which we need to offset. In the field of strategic weapons, they have the option of a first strike against a known target system and have a better defense against our retaliatory reaction which will eventually include an anti-missile missile probably deployed some years before we can have one of our own. To offset these advantages we need light, high yield warheads adapted to a mobile delivery missile system as well as to the requirements of small multiple warheads and decoys.

3. In the tactical field, the Sino-Soviet Bloc has a very considerable superiority in trained military manpower with which to oppose the United States and its Allies on the ground. The primary requirement for effective tactical weapons in our hands is to offset this manpower. Even though the USSR also had tactical nuclear weapons as good as our own, the net effect would be to reduce the amount of manpower that could be employed safely in the combat zone. Then, it becomes like a football game in which, regardless of a disparity of size of the squads, only eleven men can be played at a time by either side.

DECLASSIFIED
E.O. 12958, Sec. 3.6
NLK-98-73
By mmm NARA, Date 5/25/99

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Effective tactical weapons in our hands which are cheap, adaptable to delivery systems that can also use conventional weapons, and which are discriminatory in their destructive effect can provide the United States for the first time with an answer to Soviet manpower without our living in a condition of permanent mobilization.

4. In summary, the pros and cons of testing look differently if we consider the requirements for testing derived from U.S. military strategy.

a. If we are to absorb the first strike, we need a secure retaliatory force, which is mobile and uses lightweight warheads. Further testing is essential to develop such warheads without sacrifice of required yield.

b. If we must conclude that the USSR will beat us to an anti-missile missile, again it is important to test to develop lighter warheads. These will be necessary to permit decoys and multiple warheads to defeat the Soviet AICBM.

c. If we are to have the best of tactical weapons with the characteristics described in paragraph 3 above, we need to resume testing. Although we are not without tactical weapons now, they are generally too large and their aggregate effect too destructive for generalized use in friendly territory. For the safety of our own forces and for the protection of the friendly populations among which we expect to operate, it is more important to us than to the Soviets to perfect very small atomic weapons.

d. Thus, a failure to resume testing seriously retards progress in developing both light strategic warheads and very small atomic weapons. Because of our military strategy, progress in both these fields is worth more to us than to the USSR. This fact argues for a resumption of testing at once unless the most compelling of political arguments can be adduced against it.

Maxwell D. Taylor

Maxwell D. Taylor

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REPORT

of the

AD HOC PANEL ON NUCLEAR TESTING

July 21, 1961

Wolfgang K. H. Panofsky, Chairman
William O. Baker
Hans A. Bethe
Norris E. Bradbury
James B. Fisk
John S. Foster, Jr.
George B. Kistiakowsky
Frank Press
Louis H. Roddis
John W. Tukey
Walter H. Zinn
Spurgeon M. Keeny, Jr.,
Technical Assistant

~~RESTRICTED DATA~~
This document contains restricted data as defined in the Atomic Energy Act of 1954. Its transmittal or the disclosure of its contents in any manner to an unauthorized person is prohibited.

WH S&T Cont. No. TS-107
This document consists of 34 pages,
No. 1 of 30 copies, Series A.

DECLASSIFIED
E.O. 12958, Sec. 3.6
NLK/86-142
By NARA, Date 6/1/98

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The principal areas of weapon improvements in the tactical weapons field involve: a) economy in the use of fissionable materials; b) reduction in diameter to permit interchangeability with conventional ammunition; and c) enhancement of neutron radiation effects. However, it is difficult to evaluate the potential value of nuclear warhead improvements to either the U. S. or the USSR since there is no established doctrine on the use of tactical weapons.

Enhanced neutron radiation weapons which would be relatively more effective against personnel under certain circumstances may have significance in tactical warfare. A prototype [redacted] which would produce some enhancement in neutron radiation at a cost comparable to a conventional fission weapon, is available for test. Pure fusion weapons [redacted] would, if technically feasible, combine enhanced neutron radiation

TOP SECRET

with low cost. If such devices can be developed in a militarily useful configuration, the most optimistic estimate for earliest availability of a first device for stockpile is 1965. [redacted] The date for operational availability would, therefore, not be appreciably affected by deferment of test resumption by a year or two. The significance of these developments is strongly dependent on the extent to which future U. S. strategy emphasizes the use of nuclear weapons in tactical warfare.

In summary, comparing Case III, extensive clandestine Soviet testing, with Case II, unlimited underground testing, it would appear that the U. S. capability for a pre-emptive counterforce strategy would be about the same in both situations since the USSR would be able in either case to develop improved mobile systems while our offense force would not be significantly improved. At the same time, the counterforce capability of the USSR would eventually be improved and the deterrent capability of the U.S. correspondingly reduced under Case III as compared with Case II, since the U. S. would not be able to develop smaller warheads to facilitate mobility or to permit the addition of penetration aids to existing warheads. The extent and significance of this change depends on whether U.S. deterrence is considered to become inadequate and how important very small warheads [redacted] are considered to be to assure survival of strategic systems or to assure penetration of enemy AICBM defense.

5. "Clean" Weapons

"Clean" weapons, [redacted] constitute a special class of strategic weapons. While the reduction in fallout may diminish their usefulness in a deterrent strategy, it is possible that in some circumstances they would be useful to reduce fallout on our allies. With unlimited testing, both the U.S. and USSR could probably develop "clean" weapons [redacted]

C. TACTICAL WEAPON SYSTEMS

1. General

Tactical nuclear weapons are defined as ammunition for defensive and offensive systems whose primary purposes are the conduct of operations, (ranging from very small use of force to large operations), short of all-out war between the primary contestants. The weapons cannot be defined as to yield, size, methods of delivery or effects, but only as to purpose. Tactical nuclear systems can be considered in the role of a "deterrent" strategy to discourage enemy actions (either nuclear or non-nuclear) short of a strategic exchange. Alternatively, tactical nuclear weapons can be considered in the role of a "counterforce" stragegy for actual use in large or small quantities on either a broad battlefront or in isolated limited engagements. There exist strong differences of opinion as to whether nuclear weapons can be employed in many cases without escalation into general war. It is difficult to evaluate the potential value of nuclear warhead improvements to either the U. S. or the USSR since there is no established doctrine on the use of tactical weapons.

The principal areas of weapon improvements in the tactical weapons field involve: a) economy in the use of fissionable materials; b) reduction in diameter to permit interchangeability with conventional ammunition; and c) enhancement of neutron radiation effects. Since particular attention has recently been focused on "neutron" bomb in the discussion of the resumption

of testing, the enhancement of neutron radiation effects is discussed below in some detail in an attempt to clarify the situation.

2. Enhanced Neutron Radiation and Pure Fusion Weapons

Present very low-yield weapons [redacted] are effective against personnel mainly by the neutrons they radiate. The penetrating nature of this radiation is particularly effective against personnel inside tanks and similar blast-resistant enclosures. It results in a sharp boundary between lethal area and the territory safe for our troops, and therefore permits the use of such weapons in closer engagements. Reduction in blast damage and radioactivity on the ground would facilitate forward movements of our troops after the use of nuclear weapons. It is therefore natural to seek relative enhancement of these neutron effects. This can be done by attempting to design small yield devices [redacted]

Two entirely different types of weapons with enhanced neutron radiation have been conceived by the U. S. weapons laboratories: [redacted]

Panofsky 7

TOP SECRET

September 5, 1961

MEMORANDUM OF MINUTES OF NATIONAL SECURITY COUNCIL MEETING - August 8, 1961

Subject: Panofsky Report

The meeting opened with an extensive summary of his panel's report by Dr. Panofsky. One point to which he gave particular emphasis was that the party which is engaged in concealment can always succeed if a sufficient effort is made. In summary, Dr. Panofsky made four points:

1. A ban on testing does impose limitations on our development;

2. Such limitations can in large measure be compensated for by improvements elsewhere in our technology.

3. In the long run, nevertheless, such limitations will impair our strength.

4. In the short run, the matter is not critical.

The President asked Dr. Panofsky to comment on the remarks of the JCS about his report. Dr. Panofsky replied that he could not make any intelligent comment because the criticisms of the Joint Chiefs were not spelled out.

Dr. Seaborg remarked that the Soviet Union may well be testing in the laboratory, with a much higher limit on what would be classed as a laboratory explosion. Dr. Seaborg wanted a higher limit on U. S. laboratory tests, and the President appeared to agree.

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DECLASSIFIED E.O. 12958, Sec. 3.6 NLK97-57 By MARA, Date 9/98

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(After the meeting, the President authorized Dr. Seaborg to conduct laboratory tests up to a limit of one-ton TNT equivalent.

Mr. McCloy reported Khrushchev's remark that, in a discussion of chemical explosions, "it all depends on what you mean by testing." He also reported that Khrushchev had told him that he was receiving pressure from the military not in technical but in strategic areas. Khrushchev had mentioned 100-megaton bombs as the economical way of using his large rockets.

General Lemnitzer said that the main concern of the Joint Chiefs of Staff was with the lack of intelligence on what the Soviets are doing and on the character and strength of Soviet weapons and the Soviet stockpile. The Joint Chiefs were further concerned about what the Soviet Union might have done since 1958. The Joint Chiefs were not currently advocating atmospheric testing. They objected strongly to the notion that there was no tactical doctrine for the use of atomic weapons. General Lemnitzer asserted that the Chiefs definitely do have such a doctrine. They did not object to a "reasonable delay" but the meaning of this phrase turned on definition. There would be a great disadvantage if we were confronted by the Soviets with their possession of a serious new weapon.

The President asked if under the doctrine of the JCS we could have a tactical nuclear war. General Lemnitzer's answer was in the affirmative but he recognized that many people would disagree.

There followed a careful discussion of the need for testing in connection with the development of the so-called neutron bomb. In this discussion it became clear that while tests would not be needed in the near future for the neutron bomb itself, they would be helpful in the area of "staging experiments" which might turn out to be a limiting factor upon the development of a neutron bomb as an effective weapon, if in fact such a device proves practicable. General Taylor strongly supported the need for the neutron bomb.

Dr. Wiesner pointed out that there were not yet any good studies of the precise effects of such a weapon, but Mr. Foster replied

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that certain of its qualities were very clear, notably that the radius of effectiveness was very sharply defined.

The President asked what we could learn by testing in 1962 and Dr. Panofsky replied that we could pre-test the staging principle, move toward cleaner strategic warheads, and save time in the development of the neutron bomb, if the staging principle proved to be the most difficult problem. We could also test the weapon arrow, which would be useful on the assumption that we were using tactical weapons in great quantity, and we could substantially recuce the weight of a 100 kiloton weapon.

We could test for improved safety, and for unknown forms of vulnerability in our own weapons systems.

The President then asked what would happen if we should test underground while the Soviet Union tested in the atmosphere. This question received no decisive answer, althoughthere was much sentiment to the effect that our own initial tests could be underground as well as not in any case.

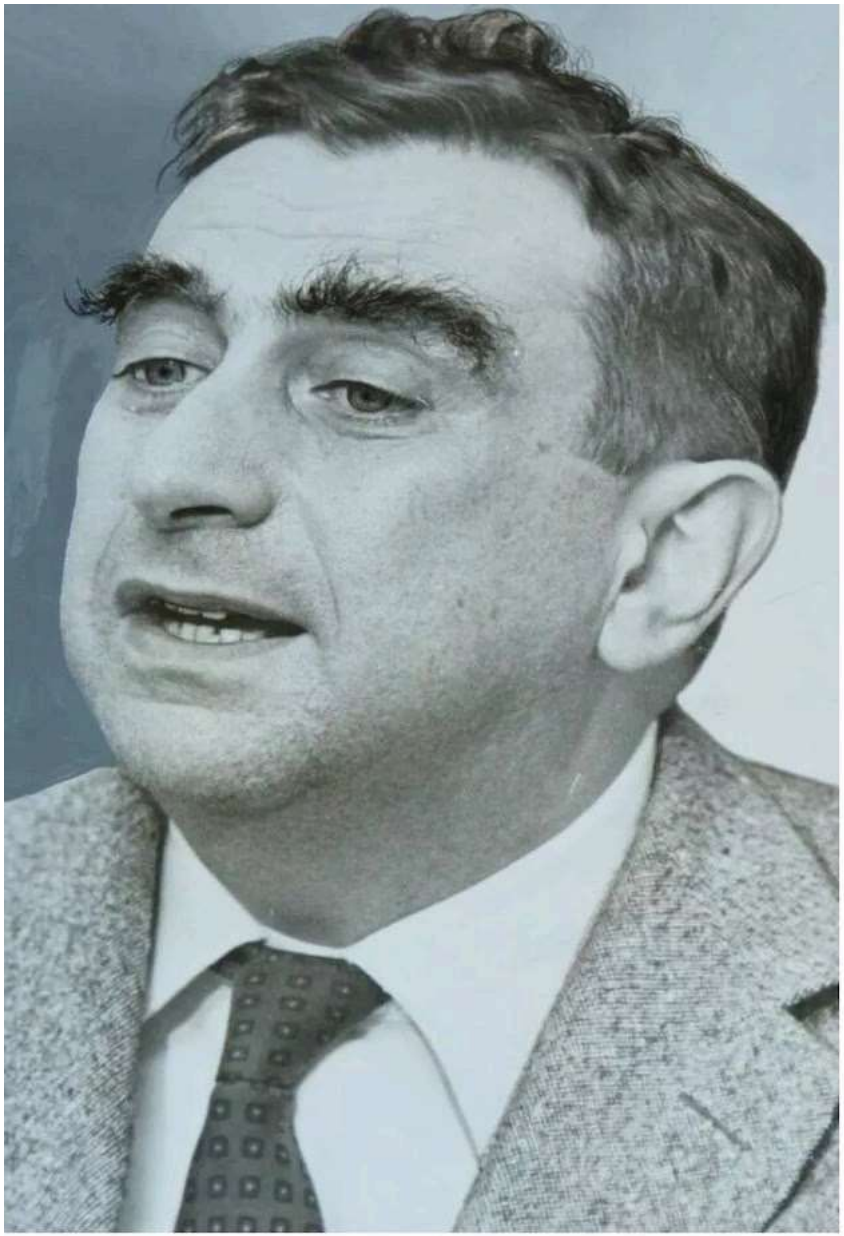
Speaking in general support of testing, General Taylor argued that testing means progress and that progress means more to us than to the Soviet Union. At this point Director Dulles entered a strong defense of our intelligence on atomic matters, asserting that we know much more than General Lemnitzer supposed about the quality and content of the Soviet stockpile. The President stated that there ought to be a clarification of the differences between the JCS and others on this point, and he asked General Taylor to consult with General Lemntizer, Mr. Dulles and Dr. Panofsky in order to define the disagreements and narrow them if possible.

Mr. McCloy believed that as a practical political matter we ought to wait until 1962 to test because of the U N General Assembly. As he read the Panofsky report, such a postponement was acceptable in technical terms. The President remarked that we have here a major political problem. We should clearly resume testing fairly soon, but the U N problem is a serious one. We would now have to emphasize the finding of our blue ribbon panel if we cannot prove that the Soviet Union is not testing. He would make a statement on this on Wednesday or Thursday.

McGeorge Bundy

TOP SECVET


Protect and Survive
2 November 1981
James Crabtree, architect
nuclear bomb shelters UK



Teller and Ulam's key report of March 9, 1951, On Heterocatalytic Detonations I: Hydrodynamic Lenses and Radiation Mirrors, argued that "several" fission primaries could be used. Russia applied that!

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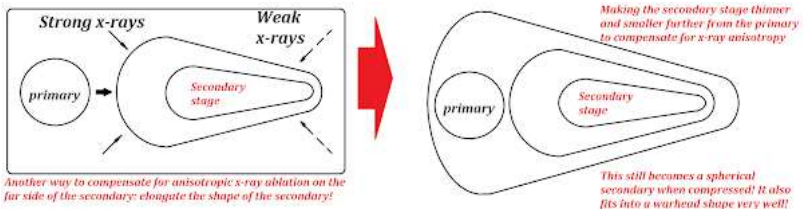
ON HETEROCATALYTIC DETONATIONS I.

Hydrodynamic Lenses and Radiation Mirrors

Introduction

In this discussion the following general scheme is considered. By an explosion of one or several conventional auxiliary fission bombs, one hopes to establish conditions for the explosion of a "principal" bomb. This latter may be either a fission or a thermonuclear assembly.

We propose to discuss certain general features of such an arrangement. The main purpose of the "auxiliary" system is to induce very high compressions in the principal assembly. It is known (L. W. Nordheim, unpublished data) that, for example, in the "Alarm Clock" high compressions of the active core will permit economy in the tritium put initially into the system and may be instrumental in starting thermonuclear reactions in assemblies of a feasible size. Ordinarily one uses high explosives as the auxiliary system. Great compression can be obtained, but the size of the highly compressed region is small. In certain thermonuclear arrangements, like the Alarm Clock, the size and the mass of the material to be compressed is so great that inordinate amounts of HE would have to be used. We have the following situation in mind, as



ABOVE: **Teller and Ulam in their original 1951 report suggested that "several" fission primaries could be used to ignite the secondary stage, an innovation since February 1958 applied by Russia to low yield very high fusion percentage nuclear weapons, yet ignored entirely in the West. This type of "alternative idea" is crucially important for progress in low cost tactical nuclear weapons design for credible deterrence of invasions! We must test it now, and proceed with civil defence and ABM against escalation risks, as the Russians did decades ago.** The thing is, if you have one primary, you have problems with using it for a clean bomb of high yield to mass ratio, because to get x-rays uniformly around the secondary is *virtually impossible without a very heavy thick outer casing "hohlraum" to confine the x-rays while they are dispersed uniformly around the secondary* (which means a slow fusion ignition, needing a heavy outer casing to confine the x-rays for the slow ignition to take place). So you have to use a dense, thick hohlraum or case (to confine x rays for as long as possible) and a low density plastic disperser of x-rays, which slows down (as well as dispersing) the x ray transport from primary to secondary. This is why the early efforts at clean weapons went wrong, leading to both huge mass to yield ratios and low neutron output! On the other hand, if you have one primary each side of a prolate spheroid shape low density (Li6D etc) secondary as the Russians (Project 49, first tested by Russia on 23 February 1958), you don't need either plastic foam disperser or a very thick outer casing, so the reaction goes very fast, allowing effective neutron bombs as Charles Grace pointed out! That's the Russian approach. Livermore physicist Herbert York and others developed single-primary versions Linda, Flute and Piccolo (all 2.4 times less effective on a total yield to mass basis, than the Russian double-primary system), which led to the lightweight American SLBM warheads, but *with a great cost penalty in that they used a U235 pusher and although that could be replaced by lead, you then for low total yields you needed a secondary stage of pressurised expensive radioactive (12.3 years half life) tritium and deuterium gas for a neutron bomb*. But the Russian approach, more intuitive and experimental and less a matter of optimising one dogmatic (single primary) concept using computer simulations, showed that ou can use two such double-primary devices to implode another, larger, fusion stage, allowing a cheaper staged device giving over 99% clean weapon, still at relatively low yield. The key information (scattered in various Russian books, papers and news interviewers of the nuclear weaponeers who were recently awarded prizes by Putin) has effectively been declassified in connection with clean peaceful nuclear devices, but it is basically the same technology as used for Russian neutron deterrence. In addition, Herman Kahn pointed out key problems with "sensible" groupthink civil defense procrastination which is vital to deter escalations of limited nuclear warfare, e.g. if you wait until a crisis before you release civil defense manuals or shelter building advice like the UK Government's 1980 *Protect and Survive* and **1981-2 *Domestic Nuclear Shelters Technical Guidance* (two editions) to the public,** then "virtue-signalling" BBC and other mass media will do what they did in the 1920s and 1930s, i.e. simply dismissing "unfashionable" facts as "lying, war mongering propaganda", and the enemy will use it as an excuse to escalate their war preparations. (Or in the case of so-called "Scientific American", publishing a bogus "review" of Herman Kahn's 1960 "On Thermonuclear War", claiming that the author doesn't exist, misunderstanding the the whole point of civil defense to make deterrence credible so as to avert war, etc., etc.) In addition, it takes time to manufacture radiation meters, to build shelters, and to arrange evacuation plans, and especially, to educate thousands of fake news "journalists" aka deceit financed lying propagandarists who are deluded by the left wing Russian funded Sputnik "conspiracy" (really, "fashionable fascism"). We need to face the facts on Russian progress now. It has been declassified by Russia, on the basis that their relatively clean tactical nuclear weapons were like their nuclear shelters "dual use", i.e. a low yield fusion device could be used for peaceful canal creation or for battlefield defense, just as their underground bunkers are used as car parks in peacetime, an economically viable concept which is completely alien to most extravagance-biased studies of civil defense:

ФЕДЕРАЛЬНОЕ УПРАВЛЕНИЕ МЕДИКО-БИОЛОГИЧЕСКИХ И ЭКСТРЕМАЛЬНЫХ ПРОБЛЕМ ПРИ МИНИСТЕРСТВЕ ЗДРАВООХРАНЕНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ

МИНИСТЕРСТВО РОССИЙСКОЙ ФЕДЕРАЦИИ ПО АТОМНОЙ ЭНЕРГИИ

(MINISTRY OF ATOMIC ENERGY OF THE RUSSIAN FEDERATION)

(PEACEFUL NUCLEAR EXPLOSIONS)

МИРНЫЕ ЯДЕРНЫЕ ВЗРЫВЫ

Обеспечение общей и радиационной безопасности при их проведении

ФАКТЫ
СВИДЕТЕЛЬСТВА
ВОСПОМИНАНИЯ

(EVIDENCE)

PAGE 135 IN THIS BOOK STATES THAT THE 14 KILOTON RUSSIAN UNDERGROUND NUCLEAR TEST ON 11 MAY 1965 WAS THE FIRST ATTEMPT TO REDUCE THE FISSION YIELD OF CLEAN DEVICES FROM THE PREVIOUS 5% MINIMUM TO THE DESIRED 0.5%, USING 0.4 KT FISSION PRIMARIES. BUT THIS WAS IMPOSSIBLE WITHOUT INTERMEDIATE STAGES!)

(MOSCOW)

Москва

ИздАТ

2001

М 63 **Мирные ядерные взрывы: обеспечение общей и радиационной безопасности при их проведении.** / Кол. авторов под рук. проф. В.А. Логачева — М.: Изд.АТ, 2001. — 519 с., ил.

ISBN 5-86656-116-6

Естественно, что разработать требования к какой-то характеристике технического устройства проще, чем добиться их практической реализации. К тому же необходимо было проектировать ЯВУ с учётом выполнения всех требований, учитывать возможности производства, удобство и безопасность транспортировки и подготовки их к применению не только в малонаселённой местности. Такой многофакторный подход к разработке ядерных взрывных устройств в сочетании с изобретательностью их создателей привел к успеху: уже 11.05.1965 г. на Семипалатинском испытательном полигоне был проведен первый взрыв экспериментального ядерного устройства, физическая схема которого была предложена начальником физико-теоретического отдела ВНИИТФ Ю.С. Вахрамеевым. Опыт прошел успешно, а предложенная физическая схема настолько удачной, что дала возможность создать несколько таких конструкций, с помощью которых были решены как задачи создания "чистых" ЯВУ для ядерных экскавационных взрывов и обрушения полезных ископаемых, так и задачи многих физических опытов. На рис. 3.2 представлена сделанная в музее РФЯЦ-ВНИИТФ фотография ядерного взрывного устройства большой мощности, предназначенного для проведения экскавационных ядерных взрывов.

В результате нескольких ядерных испытаний удалось довести "чистоту" первичного ядерного узла до такой степени, что после взрыва образовывалось всего несколько грамм осколков деления. Однако этой энергии было недостаточно, чтобы осуществить термоядерные реакции во вторичном, основном, энерговыделяющем узле ЯВУ. Даже для принятого в качестве "рабочего чистого" первичного узла с выходом около 20 грамм осколков деления* потребовалось разработать переходное термоядерное взрывное устройство, в котором создавалось бы энерговыделение, необходимое для возбуждения и развития термоядерных реакций с требуемым энерговыделением. При разработке "чистого" первичного узла особое внимание уделялось не только конструкции и подбору веществ центрального узла, содержавшего делящиеся материалы, но и различным внутренним деталям и сборочным единицам, которые в процессе ядерного взрыва могли активироваться, увеличивая тем

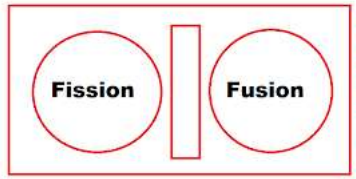
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Naturally, it is easier to develop requirements for some characteristi
of a technical device than to achieve their practical implementation
In addition, it was necessary to design JAVA taking into account th
fulfillment of all requirements, to take into account the possibilities
of production, convenience and safety of transportation and their
preparation for use not only in sparsely populated areas. Such
a multifactorial approach to the development of nuclear explosive
devices , combined with the ingenuity of their creators, led to
success: already on 05/11/1965 the first explosion of an experimenta
nuclear device was carried out at the Semipalatinsk test site, the
physical scheme of which was proposed by the head of the Physics an
Theory Department of VNIITF Yu.S. Vakhrameev. The experiment
was successful, and the proposed physical scheme was so successfu
that it made it possible to create several such structures, with
the help of which both the tasks of creating "clean" JAVA
for nuclear excavation explosions and the collapse of minerals
, and the tasks of many physical experiments were solved.
Figure 3.2 shows a photograph taken at the RFNC-VNIITF
museum of a high-power nuclear explosive device
designed for excavating nuclear explosions.

As a result of several nuclear tests, it was possible to bring
the "purity" of the primary nuclear node to such an extent
that only a few grams of fission fragments were formed after
the explosion . However, this energy was not enough to carry
out thermonuclear reactions in the secondary, main, energy-
generating node of Java. Even for the primary node adopted
as a "working pure" with an output of about 20 grams of fission
fragments*, it was necessary to develop a transient thermonuclear
explosive device in which the energy release necessary for the
excitation and development of thermonuclear reactions with the
required energy release would be created. When developing a
"clean" primary node, special attention was paid not only to the
design and selection of substances of the central node containing fissil
materials, but also to various internal parts and assembly units that
could be activated during a nuclear explosion, thereby increasing

0.4 kt

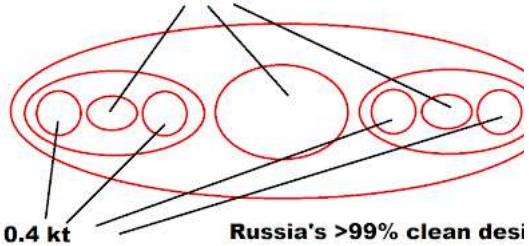
(In other words, several staged needed!) 13



THIS CLASSI DESIGN FAILS F LOW YI PRIMAR

RUSSIAN DOLL TYPE STAGING IS NECESSAR

T+D gas spark-plugs inside hollow Li6D she



0.4 kt **Russia's >99% clean desi**

Испытания ядерных зарядов

TEST DATE PLACE KILOTONS

RUSSIAN DEVELOPMENT OF CLEANER LOW YIELD TACTICAL NUCLEAR WEAPONS / PNE

№ по каталогу	Число, месяц, год	Место проведения испытаний	Энерговыделение, кт ТЭ	Примечание
245	13.02.1966	СИП шт.Е-1	125	Испытание заряда с термоядерным блоком, содержащим дейтерий под большим давлением
280	07.01.1968	СИП шт.810	7.5	Физический опыт для определения минимального количества дейтерия, которое может устойчиво взрываться.
294	09.11.1968	СИП шт.606	4	С 1967 по 1970 гг. испытывался заряд с термоядерным блоком, дающим минимум наведенной активности. Всего проведено 8 таких опытов.
296	18.12.1968	СИП шт.508	8.9	
299	13.04.1969	СИП шт.24П	0,001-20	
302	04.07.1969	СИП шт.710	15	
333	22.03.1971	СИП шт.510П	67	
357	28.03.1972	СИП шт.191	6	
377	10.12.1972	СИП скв.1204	140	Испытание особо “чистого” заряда с высоким коэффициентом термоядерности (около 1%)
382	23.07.1973	СИП скв.1066	212	
400	31.05.1974	СИП скв.1207	71	
422	08.06.1975	СИП шт.165	32	

PURE DEUTERIUM GAS UNDER HIGH PRESSUR

TEST OF MINIMUM YIEI FOR PURE DEUTERIUM FUSION CHARGE BURN

EXAMPLES OF NUCLEA TESTS FOR DEVELOPMENT OF LOW YIELD CLEAN CHARGE

140 KILOTON TOTAL YIELD CHARGE OF ONI ~1% FISSION YIELD

422	08.06.1979	СИП шт.165	32	
616	18.08.1983	СИПНЗ шт.А-40	0,001-20	
658	28.12.1984	СИП скв.1353	0,001-20	

Специалисты другого ядерного центра - ВНИИТФ - сначала тоже предполагали при создания "чистых" ЯВУ для взрывов наружного действия использовать твердые дейтериды лития с небольшой добавкой трития (для затравки). Однако в 1963 г. возникли новые идеи. Так, физики-теоретики ВНИИТФ Е.Н. Аврорин, Е.И. Забабахин, Л.П. Феоктистов, А.К. Хлебников, А.А. Бунатян и другие. предложили провести физический опыт, в котором осуществить "зажигание"* большого количества трития и дейте-

** Дейтоны, дейтроны - разные названия ядер дейтерия.*

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TRANSLATION OF EXTRACT FROM PAGE 138:

Specialists of the Other Nuclear Center - VNIITF - initially suggested using solid lithium deuterides with a small addition of tritium (for seed) when creating "clean" JAVA for external explosions However, in 1963, new ideas emerged. So, theoretical physicists of VNIITFE.N. Avrorin, E.I. Zababakhin, L.P. Feoktistov, A.K. Khlebnikov, A.A. Bunatyan and others. they offered to conduct a physical experiment in which to "ignite"* a large amount of tritium and data-

* Deutons, deuterons are different names of deuterium nuclei.

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рия. Для этого на заводе Института была создана специальная физическая установка ФО-24, сконструированная группой специалистов первого конструкторского бюро ВНИИТФ под руководством Б. В. Литвинова и П.А. Есина. Физический опыт с использованием этой установки был проведен 04.02.1965 г. на Семипалатинском полигоне. В этом эксперименте, возможно, впервые в мире было осуществлено зажигание большой массы газообразного дейтерия [17].

Развивая идеи, реализованные при проведении этого опыта, Е.Н. Аврорин предложил в новой физической схеме заряда использовать газообразный дейтерий под большим давлением (повышенной плотности). Проверка этого конструкторского предложения, проведенная 13.02.1966 г. на Семипалатинском полигоне, была успешной и полностью подтвердила результаты физических расчетов. Зажигание было осуществлено от первичного узла, осколочная активность которого не превышала 6% от общего энерговыделения. Таким образом был доказан факт получения энерговыделения от больших количеств дейтерия. Этот важный научный и практический результат

ria. For this purpose, a special physical installation FO-24 was created at the Institute's plant, designed by a group of specialists from the first design bureau of VNIITF under the leadership of B. V. Litvinov and P.A. Esin. The physical experiment with the use of this installation was conducted on 02/04/1965 at the Semipalatinsk test site. In this experiment perhaps for the first time in the world, ignition of a large mass of gaseous deuterium was carried out [17]. **(NOTE: Russia has never announced thi 2 April 196 test!)**

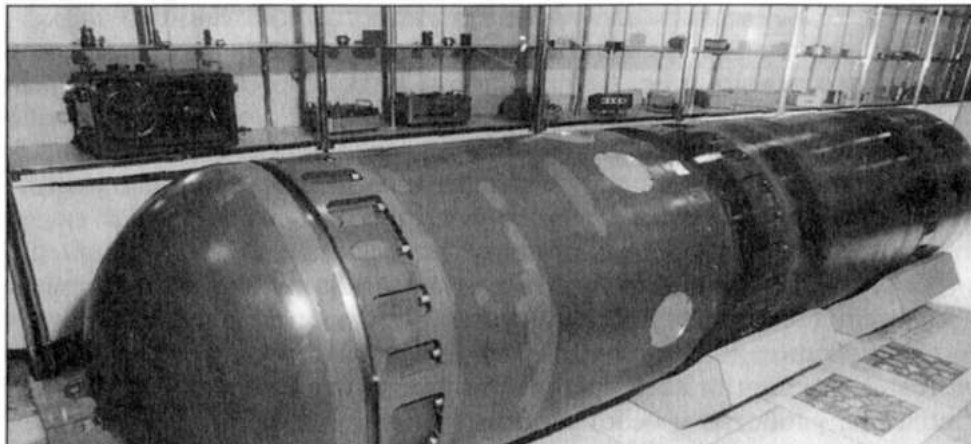
Developing the ideas realized during this experience, E.N. Avrorin proposed using deuterium gas under high pressure (high density) in a new physical charge scheme . The verification of this design proposal, carried out on 13.02.1966 at the Semipalatinsk test site, was successful and fully confirmed the results of physical calculations. Ignition was carried out from the primary node, the fragmentation activity of which did not exceed 6% of the total energy release. Thus , the fact of obtaining energy release from large amounts of deuterium was proved. This important scientific and practical result opened the way to the use of the cheapest raw deuterium in the energy sector. What could not be obtained in expensive and complex installations for thermonuclear fusion was obtained on a disproportionately large scale in an underground nuclear explosion.

13 Feb. 1966 = 125 kt at 320 r depth!

* Physicists call "ignition" the implementation of a thermonuclear reaction with a noticeable energy release, which can lead to a stable flow of thermonuclear reactions.

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ABOVE: TRANSLATION FROM PAGE 139, DEUTERIUM BURNS AS PROVED IN A 6% FISSION (94% CLEAN) 125 KT 13 FEB. 1966 TEST!



открывал путь к использованию в энергетике самого дешевого сырья - дейтерия. То, чего не удалось получить в дорогостоящих и сложнейших установках для термоядерного синтеза, было получено в несоизмеримо больших масштабах при подземном ядерном взрыве.

* *"Зажиганием" физики называют осуществление термоядерной реакции с заметным энерговыделением, которое способно привести к устойчивому течению термоядерных реакций.*



Рис. 3.2. Ядерное взрывное устройство большой мощности, предназначенное для проведения взрывов с выбросом грунта.

МИНИСТЕРСТВО РОССИЙСКОЙ ФЕДЕРАЦИИ ПО АТОМНОЙ ЭНЕРГИИ

МИРНЫЕ ЯДЕРНЫЕ ВЗРЫВЫ ISBN 5-86656-116-6





At H + 7 minutes the clou top was 15 km, then the cloud w blown downwi directio 70 degr

(Scaled altitude detonat gave fireball the USA '53 Grab and '57 Priscilla tests.)

40 KT at 350 m burst altitude

Общий вид облака воздушного ядерного взрыва, произведенного 14.09.1954 г. на Тоцком учении: а) – через несколько секунд после взрыва; б) – через несколько минут после взрыва

Мощности доз гамма-излучения на местности в районе эпицентра воздушного ядерного взрыва, произведенного на Тоцком учении

Расстояние от эпицентра взрыва, м	Мощность дозы гамма-излучения на различное время после взрыва, Р/ч				
	30 мин	1 час	5 часов	1 сутки	3 суток
100	-	-	12	1	0,3
200	140	85	9	0,8	0,1
400	19	12	1,2	0,1	-
700	2,0	1,2	0,1	0,001	-
1000	0,3	0,2	0,02	0,002	-

Необходимо отметить, что причиной радиоактивного загрязнения местности в районе эпицентра взрыва не могли быть продукты взрыва («осколки деления»), поскольку они в этом районе не оседали. Такой причиной стало образование в грунте наведенной активности под действием потока нейтронов проникающей радиации, испускаемой из точки взрыва ядерного заряда.

Для получения данных об уровнях радиации в районе эпицен-

14 September 1954 Russian test

The power of gamma radiation doses on the ground in the area of the epicenter of an aerial nuclear explosion produced at the Totsk exercise

Distance from the epicenter of the explosion, m	Gamma radiation dose rate for different time after explosion, R/h				
	30 min	1 hour	5 hours	1 day	3 days
100	-	-	12	1	0.3
200	140	85	9	0,8	0,1
400	19	12	1,2	0,1	-
700	2,0	1,2	0,1	0,001	-
1000	0,3	0,2	0,02	0,002	-

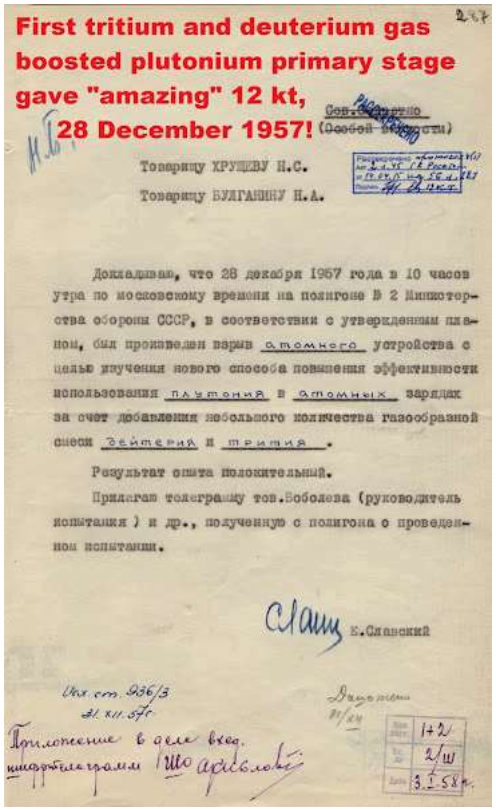
It should be noted that the cause of radioactive contamination of the area in the area of the epicenter of the explosion could not be the product of the explosion ("fission fragments"), since they did not settle in this area . Such a reason was the formation of induced activity in the ground under the action of a neutron flux of penetrating radiation emitted from the point of explosion of a nuclear charge.

To obtain data on radiation levels in the epicenter area in the

тра в первые минуты после взрыва использовались датчики дистанционного гамма-рентгенометра, установленные на расстоянии 730 м от эпицентра по азимуту 170°. Так, через 2 минуты после взрыва уровень радиации составлял 65 Р/ч, через 10 минут – 10 Р/ч, через 25 минут – 2,4 Р/ч, а спустя 47 минут – 1,5 Р/ч. Снижение уровня радиации в первые 15 минут происходило за счет распада алюминия-24 ($T_{1/2}$ = 2,2 мин), а затем уровни радиации стали характеризоваться уровнем излучения марганца-54 ($T_{1/2}$ =2,6 час) и натрия-24 ($T_{1/2}$ = 15 час).

Translation RIGHT

first minutes after the explosion, sensors of a remote gamma-ray radiometer installed at a distance of 730 m from the epicenter along an azimuth of 170° were used. So, 2 minutes after the explosion the radiation level was 65 R/h, 10 minutes later - 10 R/ h, 25 minutes later - 2.4 R/ h, and 47 minutes later - 1.5 R/h. The decrease in the radiation level in the first 15 minutes was due to the decay of aluminum-24 (T = 2.2 min), and then the radiation levels became characterized by the radiation level of manganese-54 (T = 2.6 h) and sodium-24 (T = 15 hours).



First tritium and deuterium gas boosted plutonium primary stage gave "amazing" 12 kt, 28 December 1957!

Товарищу ХРУЩЕВУ Н.С.

Товарищу БУЛГАНИНУ Н.А.

Докладываю, что 28 декабря 1957 года в 10 часов утра по московскому времени на полигоне В 2 Министерства обороны СССР, в соответствии с утвержденным планом, был произведен взрыв атомного устройства с целью изучения нового способа повышения эффективности использования плутония в атомных зарядах за счет добавления небольшого количества газообразной смеси дейтерия и трития.

Результат опыта положительный.

Прилагаю телеграмму тов.Воболова (руководитель испытания) и др., полученную с полигона о проведенном испытании.

Е.Славский

Приложение в деле вход. шифртелеграмм

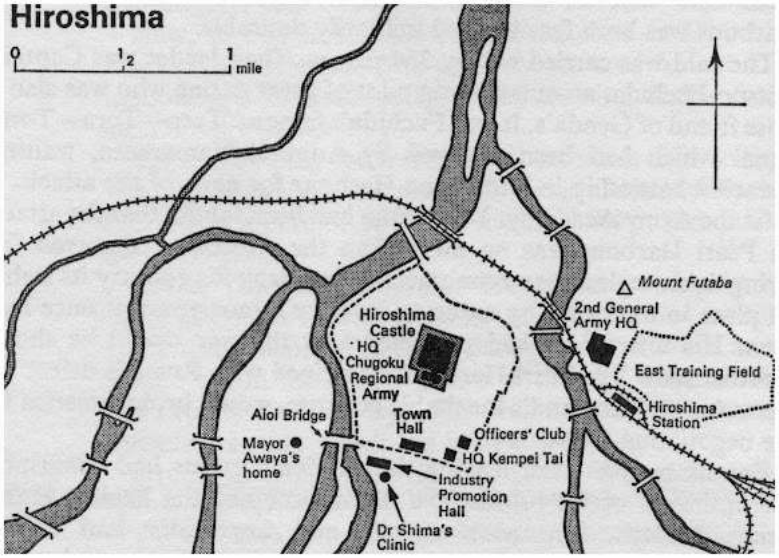
President Kennedy, Special Message to the Congress on Urgent National Needs, May 25, 1961: "They send arms, agitators, aid, technicians and propaganda to every troubled area. But where fighting is required, it is usually done by others ... With these formidable weapons, the adversaries of freedom plan to consolidate their territory ... We stand, as we have always stood from our earliest beginnings, for the independence and equality of all nations. This nation was born of revolution and raised in freedom. And we do not intend to leave an open road for despotism. ... no amount of arms and armies can help stabilize those governments which are unable or unwilling to achieve social and economic reform and development. Military pacts cannot help nations whose social injustice and economic chaos invite insurgency and penetration and subversion. The most skillful counter-guerrilla efforts cannot succeed where the local population is too caught up in its own misery ... One major element of the national security program which this nation has never squarely faced up to is civil defense. ... Public considerations have been largely characterized by apathy, indifference and skepticism ... But ***this deterrent concept assumes rational calculations by rational men. And the history of this planet, and particularly the history of the 20th century, is sufficient to remind us of the possibilities of an irrational attack, a miscalculation, an accidental war, or a war of escalation in which the stakes by each side gradually increase to the point of maximum danger, which cannot be either foreseen or deterred. It is on this basis that civil defense can be readily justifiable - as insurance for the civilian population in case of an enemy miscalculation. It is insurance we trust will never be needed - but insurance which we could never forgive ourselves for foregoing in the event of catastrophe. ...***

there is no point in delaying the initiation of a nation-wide long-range program of identifying present fallout shelter capacity and providing shelter in new and existing structures. Such a program would protect millions of people against the hazards of radioactive fallout in the event of large-scale nuclear attack. [Emphasis added.] ... Therefore, under the authority vested in me by Reorganization Plan No. 1 of 1958, I am assigning responsibility for this program to the top civilian authority already responsible for continental defense, the Secretary of Defense. ... no insurance is cost-free; and every American citizen and his community must decide for themselves whether this form of survival insurance justifies the expenditure of effort, time and money. For myself, I am convinced that it does." (This is now "taboo" for obvious reasons, so the version on the JFK Library site is just an extract omitting all the above, and just quoting Kennedy's politically-correct Moon-landing idea fro the end of the speech!)

President Kennedy, TV and radio address July 25, 1961: "We intend to have a wider choice than humiliation or all-out nuclear action. ... In May, I pledged a new start on Civil Defense. Last week, I assigned, on the recommendation of the Civil Defense Director, basic responsibility for this program to the Secretary of Defense, to make certain it is administered and coordinated with our continental defense efforts at the highest civilian level. Tomorrow, I am requesting of the Congress new funds for the following immediate objectives: to identify and mark space in existing structures - public and private - that could be used for fall-out shelters in case of attack; to stock those shelters with food, water, first-aid kits and other minimum essentials for survival; to increase their capacity; to improve our air-raid warning and fallout detection systems, including a new household warning system which is now under development; and to take other measures that will be effective at an early date to save millions of lives if needed. In the event of an attack, the lives of those families which are not hit in a nuclear blast and fire can still be saved - if they can be warned to take shelter and if that shelter is available. We owe that kind of insurance to our families - and to our country. In contrast to our friends in Europe, the need for this kind of protection is new to our shores. But the time to start is now. In the coming months, I hope to let every citizen know what steps he can take without delay to protect his family in case of attack. I know that you will want to do no less. The addition of $207 million in Civil Defense appropriations [*Herman Kahn (RAND Corp), had recommended in his testimony to US Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, Hearings on Biological and Environmental Effects of Nuclear War, 26 June 1959, page 915 that $100 million be spent on buying 2 million radiation dose rate meters etc, $150 million be spent on identifying and stocking basement shelter spaces in existing buildings, etc.*] brings our total new defense budget requests to $3.454 billion, and a total of $47.5 billion for the year. This is an increase in the defense budget of $6 billion since January, and has resulted in official estimates of a budget deficit of over $5 billion. The Secretary of the Treasury and other economic advisers assure me, however, that our economy has the capacity to bear this new request. ... I realize that no public revenue measure is welcomed by everyone. But I am certain that every American wants to pay his fair share, and not leave the burden of defending freedom entirely to those who bear arms. For we have mortgaged our very future on this defense - and we cannot fail to meet our responsibilities. ... For the choice of peace or war is largely theirs, not ours. It is the Soviets who have stirred up this crisis. It is they who are trying to force a change. It is they who have opposed free elections. ... Three times in my life-time our country and Europe have been involved in major wars. In each case serious misjudgments were made on both sides of the intentions of others, which brought about great devastation."


Ground zero: Shima hospital





ABOVE: the key military targets in Hiroshima were untouched by today's nuclear targetting standards, while collateral damage on civilians was maximised. For example, Hiroshima airport at 2 miles SSW of ground zero, as well as Hiroshima's major industrial weapons factory, the Mitsubishi Works at 2.7 miles SSW of ground zero, and even Hiroshima's Port at 3 miles SSE of ground zero, all survived virtually intact, with *no significant blast, fire or radiation damage.* The Hiroshima bomb was aimed at the famous T-shaped Aioi Bridge (shown above), which again survived, although under one-fifth of a mile from ground zero. The bomb actually detonated over a **brick-built hospital, the Shima Surgical Hospital, which collapsed but was not "vaporized" (a photo of the rubble remains, at ground zero, is shown by Dr Glasstone, but as always with any really useful information in the book, are deliberately *not clearly identified as being a photo of ground zero; typical secrecy related obfuscation*)**. Fifteen thousand children started work at 8am (half an hour before the bomb dropped) on 6 August 1945 throughout the city of Hiroshima, clearing fire-breaks by demolishing hundreds of wooden houses in anticipation of incendiary bombing raids. The **"Restricted"-classified detailed records (USAEC report NP-3041, see extract linked here) on the fate of these 15,000 children (some in the open, some shadowed by buildings) gave the very first data PROVING the excellent protection given by any kind of shadowing from thermal radiation and blast wind carried flying debris (for "duck and cover" protection in the Cold War),** but the STUPID secrecy surrounding the data allowed enemy propaganda to "ridicule" it, in the exactly way that anti-civil defense bigots in the UK "ridiculed" shelters in WWII (and in the run up to WWII) because civil defense-PROVING key **detailed data on their efficiency was kept secret in reports like RC450 (which we have now published at this www.nukegate.org site and internet archive**); in both cases of UK shelters in WWII and Japanese buildings in nuclear attacks, **this "secret" classified data was used in the Confidental 1957 TM-23-200 "Capabilities of Atomic Weapons" and is also used in the Secret 1972 manual DNA-EM-1 "Capabilities of Nuclear Weapons", which also contained data on survival in Nevada desert foxholes which was "secret" although highly relevant to simple civil defense countermeasures! In addition, census surveys ostensibly to collect data on the nuclear radiation effects produced detailed data on survival in concrete buildings. By interviewing nuclear survivors and requiring them to provide detailed data during repeated censuses, extensive data was collected on the people in the buildings at explosion time, their exact position (so radiation shielding could be calculated) and their fate, giving survival statistics. This data was initially on punched cards but later it was transferred to the magnetic tapes of computers fed with this secret data at Dirkwood Corporation, for estimating nuclear war survival statistics. (Corrections were made for the longer blast durations and thermal pulses for higher yield nuclear explosions.)** Military bases to the north and NE of ground zero (shown above near Hiroshima Castle and Hiroshima railway station) contained 40,000 soldiers (mostly outdoors doing physical exercise at 8.30am detonation time), and there were also a large number of Korean prisoners of war. The point is, as Edward Teller argued repeatedly throughout the Cold War, Hiroshima was Oppenheimer's Guernica, not the peaceful "nuclear test" Teller begged for over Tokyo Bay to demonstrate the weapon. Gordon Thomas and Max Morgan-Witts argued honestly in their 1977 book *Ruin from the Air* (Hamish Hamilton, London, p18): "Structurally, like San Francisco in the earthquake and fire of 1906, Hiroshima was built to burn. Ninety percent of its houses were made from wood. Large groups of dwellings were clustered together." They add (p160): "For two days, on June 14 and 15, the Chiefs ... had been perfecting their invasion plans for Japan, code-named Olympic and Coronet. Olympic called for an initial assault against southern Kyushu [the southernmost of the four islands of Japan] on November 1, 1945, with a force of 815,548 troops; Coronet was the plan for the invasion five months later, of Honshu in the Tokyo area, with a commitment there of a further 1,171,646 men." It was in this context that the nuclear weapons were used.

By focussing exclusively on civilian (not military!) targets, but using solely free-field desert or ocean "effects data" unsuited to cities, Glasstone's data is an exaggeration of casualties by a factor of well over 100, on Hiroshima evidence for people unshielded outdoors, compared to those in lower floors of concrete buildings or simple low-cost dual-use shelters! Glasstone and Dolan 1977 actually give this evidence but only in their usual *in highly abstract form that is widely ignored* in Table 12.17 on p546 - though you need to square their median lethality radii to get the relative casualty areas for the open and for concrete buildings in Hiroshima - and for simple cheap British WWII type large earth covered Anderson shelters and concrete arches in Table 5.160 (collapse at 45-60 psi overpressure for 20-25 ft span Anderson type shelters with 5ft earth cover at crown; 220-280 psi for collapse of buried 8" thick 16 ft span concrete arch with 4' earth cover at crown). They also show in Table 7.35 on p287 that white cotton (8 oz per square yard) requires 32, 48 and 85 cal/cm^2 thermal exposure to ignite in nuclear bursts of 35 kt, 1.4 megaton and 20 megatons, respectively, compared to their data for bare skin blistering at 4-7 cal/cm^2 in their Figure 12.65 on p565. In Figure 12.70 on p567 they show a survivor with only burns to bare skin in Hiroshima, with no burns under a cap and clothing, at 5.5-6 cal/cm^2 (which the 1979 US Office of Technology Assessment "Effects of Nuclear War" falsely claim is "lethal"). But by removing the crucial nuclear testing photographs and the civil defense chapter evidence from the 1957 edition, the 1977 edition became a

gift to anti-civil defense, nuclear disarmament fanatics (*scroll down to see the original reason for this in the US Strategic Bombing Command row with Oppenheimer regarding strategic bombing deterrence failure prior to WWII and during WWII, vs tactical deterrence of the invasions that actually set off world wars*).

BELOW: the June 1957 edition of Glasstone's "Effects of Nuclear Weapons" debunked firestorms using examples from Operation Castle nuclear tests 110 kt Koon and 15 megaton Bravo: **no firestorms occurred in natural pisonia forests at 1.76 miles from 110 kt surface burst and at 11.8 miles from 15 megatons surface burst, contrary to that book's claims about the ignition energies of fine forest kindling at such distances from such yields!** The problem is, Glasstone totally failed to *point this out* in the 1957 edition where he gives the photos OUT OF CONTEXT, like everything else in the book (from secret weapon test report WT-921 and the secret film "Military Effects Studies on Operation Castle")! Glasstone then deleted these vital photos from all future editions of his book, along with the Nevada bomb test 100 psi peak overpressure proved shelter design in Figure 12.54 on page 522 of the 1957 edition, the photos of blast walls protecting transformers and machinery at Nagasaki (pages 514-5) and photos of shallow trenches protecting road graders and bullzozers at 30 psi peak overpressure at the Teapot-MET nuclear test (pages 516-7)! Further, the results for civil defence from the Upshot-Knothole Encore nuclear test on thermal ignition in dry Nevada desert conditions (pages 318-321, including photos) is deleted from the 1977 edition. The result is a total disconnection with reality, removing the key nuclear test data showing factual evidence for thermal ignition and how to avoid it! This turned "The Effects of Nuclear Weapons 1977" into a left-wing bogus effects propaganda book, omitting all military effects and all key nuclear test data! In particular, the 1977 removal of the final "Principles of protection" chapter took out the vitally important data in the earlier editions. The result is a confused and misleading book, completely ignoring all tactical nuclear weapons effects experience for credibly deterring the invasions that set off both world wars (for example, the third-party invasions of Belgium in 1914 and of Poland in 1939, which both triggered World Wars; invasions which could NOT be credibly deterred by a "strategic deterrent"!). The entire "arms control and disarmament" Russian front is paranoid in censoring all the truth from public debate.

Glasstone's 1957 *Effects of Nuclear Weapons* (like all subsequent editions) massively exaggerated the outdoor lethal fallout areas for megaton surface bursts: Glasstone (1957) claims that the 3000 R/hr at 1 hour elliptical area under 15 miles/hour wind extends 22 miles downwind, with 3.1 miles maximum width, giving an area of (Pi/4)(Length = 22)(Width = 3.1) = 54 square miles, contrasted to just **28 square miles** in Figure 4-14B of the 1957 Confidential TM 23-200 (forerunner of EM-1) *Capabilities of Atomic Weapons*! Similarly, for 1000 R/hr Glasstone (1957) gives an area of (Pi/4)(40)(6.8) = 212 square miles, contrasted to **just 100 square miles** given in the Confidential TM 23-200 (1957) Fig. 4-14B. *George R. Stanbury OBE of the UK Home Office Scientific Advisory Branch spotted this and compared both sets of data to Tewa nuclear test fallout pattern to ascertain the error; he also debunked the firestorm theory by showing that shadows cast by high rise concrete buildings in modern cities shield the thermal flash, preventing firestorms and related phenomena like soot generated "nuclear winter"; Stanbury's extensive data was kept secret by the UK government, as discussed below, just as it had kept secret evidence on gas mask effectiveness in the 1920s and 1930s, allowing evil lying fascism-obsessed thug "disarmer" Lord Noel-Baker to falsely dismiss gas masks for long enough to enable appeasers to help Hitler massacre millions.*

Glasstone (1957) Table 7.65 states that shredded newspaper is ignited by 4 cal/cm^2 for 10 megatons; Glasstone (1964) Table 7.44 states it needs 11 cal/cm^2 to ignite for the same yield! GLASSTONE GAVE NO EXPLANATION WHATSOEVER FOR SUCH CHANGES. Similarly, for 10 megatons, 10 oz/yard^2 blue cotton denim is stated to ignite at just 13 cal/cm^2 in Table 7.61 of Glasstone (1957), contrasted to 44 cal/cm^2 in Table 7.40 of Glasstone (1964)! *No explanation is given for the massive changes, and no references are provided.* However, **recently declassified documents prove that the equilibrium water content at different humidity levels produces massive changes in ignition energies because it takes 540 calories to evaporate (i.e. change the state) just 1 gram of boiling water (plus still more energy to get the water to 100C, before boiling it off). This is necessary for damp fuel simply because the ignition temperature is well above the boiling point of water! Duh! But no mention of this highly relevant quantitative fact is given by Glasstone, although he had been a Professor of physical chemistry!**

Glasstone does mention on page 303 of the 1957 edition, vaguely, in connection with *clothing ignition* (not fire tindering!) - *without any numbers or even stating what humidity level his data apply to:* "The moisture content is also an important factor; the larger the amount of moisture in the fabric, the greater is the energy required to ignite it." Most modern cities, including London, New York, San Francisco, and Moscow, are built beside rivers, lakes or the ocean, so have relatively higher humidity levels than specimens left to dry out in the Nevada desert at nuclear tests.

110 kilotons Koon, 1.76 miles:

110 kiloton Castle-Koon surface burst Bikini Atoll: no fire in pisonia forests on Uncle Island, 9300 ft (1.76 statute miles) from ground zero
Fig. 3.8 in secret weapon test report WT-921

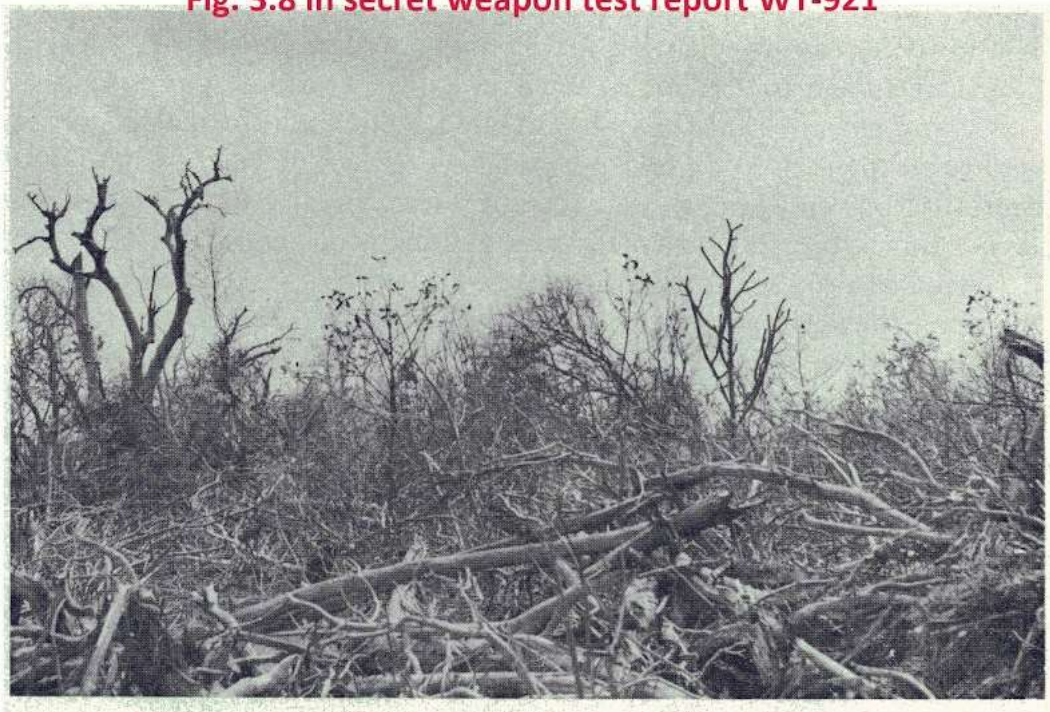


Figure 6.24a. Forest stand after a nuclear explosion, B damage (3.8 psi overpressure).

Glasstone 1957 "Effects of Nuclear Weapons" page 240 (deleted from all future editions!). Secret source: WL Fons and TG Storey, Op. Castle, Project 3.3, Blast Effects on Tree Stands, 1955, WT-921.

15 megaton Bravo, 11.8 miles:

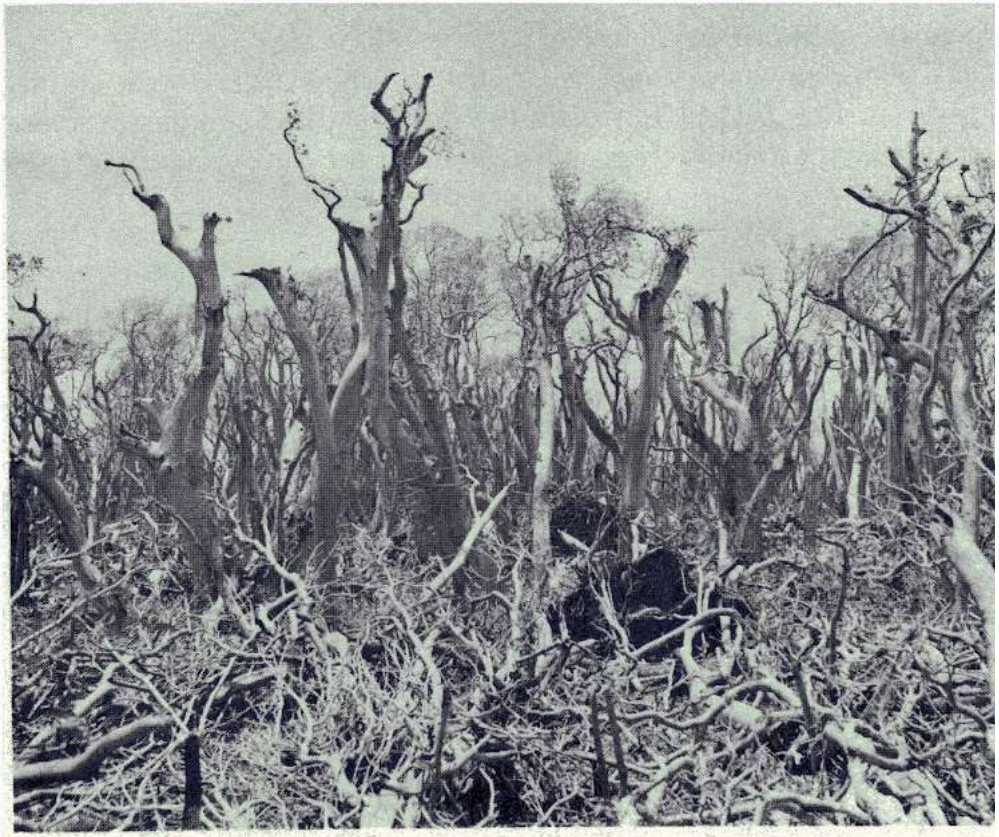


Figure 6.24b. Forest stand after a nuclear explosion, C damage (2.4 overpressure).

Glasstone 1957 "Effects of Nuclear Weapons" page 241 (delete from all further editions!). Secret source: WL Fons and Storey, WT-921, Fig. 3.2, Victor Island pisonia forest. 62,500 ft.

NOTE: the declassified AFSWP film "Military Effects Studies on Operation Castle" includes extra photos (including above) not in WT9

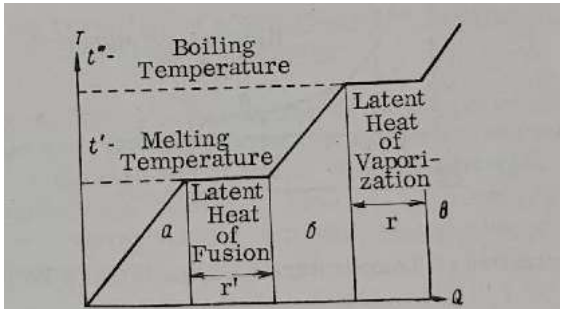


Fig. 1. Graph of T = f(Q)
a - solid phase б - liquid phase
B - vapor phase

Confidential classified - Glasstone omits the moisture ignition data!

OPERATION UPSHOT-KNOTHOLE

Project 8.11b

IGNITION AND PERSISTENT FIRES RESULTING FROM ATOMIC EXPLOSIONS— EXTERIOR KINDLING FUELS

REPORT TO THE TEST DIRECTOR

by

Fred M. Sauer, Keith Arnold, W. L. Fons, and Craig C. Chandler

page 4:

December 1953

energies of newspaper and pine needles. Kindling fuels adjacent to wood structures increase fire build-up. Storage of such fuels in metal trash cans and tying of newspapers in compact bundles materially reduce fire hazard. Automobiles were not found to present an immediate fire problem; however, if seat materials are frayed or worn they may smolder and flare up several hours later.

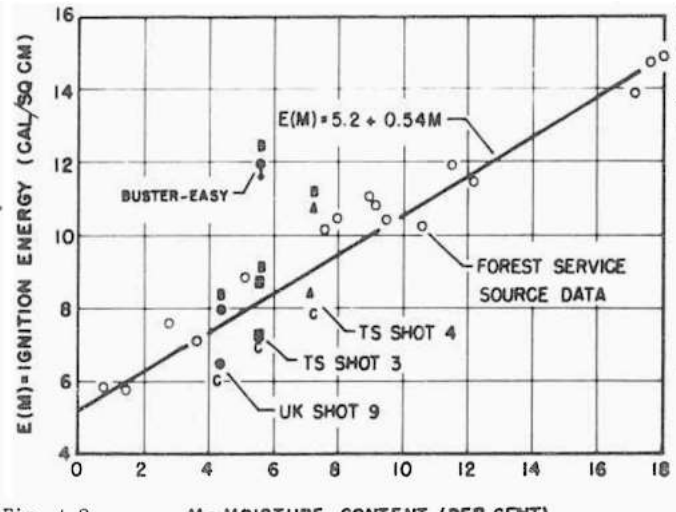


Fig. 4.2 Critical Ignition Energy for Sustained Burning-Ponderosa Pine Needles. Exposure normal to incident radiation. B--burned; C--charred.

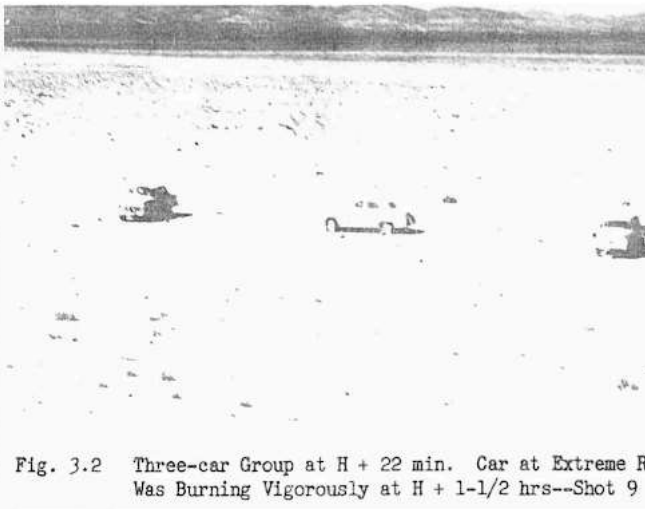


Fig. 3.2 Three-car Group at H + 22 min. Car at Extreme R Was Burning Vigorously at H + 1-1/2 hrs--Shot 9

Although no fire was visible from the helicopter at H + 22 i in any of the three car groupings, one was ignited at 12.2 cal/sq c and burned completely. This car (Fig. 3.2), with the rear window m ing and facing away from ground zero, had gray wool upholstery.

Weapon test report WT-775

Encore nuclear test, Nevada = 19% humidity at shot time. (Typical city humidity = 50-80%!) Fig 3.4 shows time to burn 10% of 5 ignited fences ranged from 5 minutes to 20 minutes!

ABOVE: Confidential classified nuclear weapon test report WT-775 proves that the large effect of humidity and thus fuel water content on thermal ignition energy *was known prior to the 1957 Glasstone Effects of Nuclear Weapons* but, like the secret classified US Strategic Bombing Survey 6 volumes on Hiroshima and Nagasaki which proved the facts of the firestorm in direct contrast to lies circulated in Glasstone's book, the data was simply excluded from publication. The equilibrium moisture content of unpainted wood or fine kindling is about 20% of the relative humidity, so at 80% humidity "dry" wood exposed to that humid air will contain 0.2*80 = 16% water. Since all common fire fuel ignites at temperatures well above the boiling point of water, each gram of water in fire fuel takes away in excess of 540 calories of energy in boiling off, and it is this fact that makes ignition energy a function of moisture content. Crumpled newspaper,

outdoors with a direct view of the fireball unobscured by city buildings, or inside on the top floors of buildings with such a view, facing the fireball, could be ignited "instantly" with "flashover" firespread after drying out at the 19% humidity of the Nevada test site for the Encore nuclear test, but the ignition energy is substantially greater for typical building contents at a more typical 50-80% city humidity level. Also note that even at 19% humidity in Nevada, it took between 5 and 20 minutes for the *first 10% of fences to burn in Nevada: contrary to the instantaneous flashover burning for dry crumpled newspaper.* Cars only ignited in these Nevada nuclear tests at 19% humidity where the upholstry had been deliberately ripped to expose inflammable seat stuffing, and even then they burned slowly! Glasstone simply OMITS all this key nuclear weapon test evidence from *Effects of Nuclear Weapons,* leaving instead confusion and ignorance that was exploited by Russian fronts in UK and USA for Western disarmament propaganda, undermining the credibility of our nuclear deterrent against major enemy provocations and invasions.

ABOVE: Hitler's "V6" was the alleged Nazi nuclear weapon. Nazi scientist Dr Eugene Sänger (1905-1964) wrote a **lengthy Top Secret report in August 1944, *Über einen Raketenantrieb für Fernbomber* (German Research Institute for Aviation Secret Command Report UM-3538, LINKED ONLINE HERE) detailing the design for a hybrid V1-V2 style "space plane" codenamed Silbervogel (Silver-bird), very similar in some principles to the NASA Space Shuttle, in order to carry huge incendiary (allegedly nuclear) warheads to New York, Washington D.C., Chicago and Pittsburgh steel plants, to end American involvement in WWII (his report actually contains maps with effects radii, allegedly showing the effects on these targets).** This was not a last minute desperate plan to satisfy Hitler's desire for global domination, but the end of a decade of research, Sänger had proposed the concept in his PhD thesis, *Raketenflugtechnik* (Rocket Flight Engineering) which he published as a book in 1933 after the spacecraft thesis was rejected for being "speculative". He argued that the usual claims about spacecraft speed and immense travel times for spacetravel are bunk because what determines human safety is acceleration, not speed, and even if spacecraft acceleration is limited to just terrestial gravity acceleration $a = 1g$, in the velocity equation $v = at$ which is then inserted into the relativistic time shift factor, $(1 - v^2/c^2)^{1/2}$, then the relativistic time-dilation means that with a poweful propulsion system *you can get to the centre of the galaxy in just 18 years or to Andromeda in 26 years* (allowing for reversing the thrust direction at half way, to slow down the spacecraft for landing). When Hitler was elected that year, he became a Nazi Party member for a time and was free to proceed with the spacecraft research he wanted to do, which had been prohibited by the straight-laced academics in his university. The 1944 map above showing Sänger's plan to wipe out Manhattan Island, New York, was reprinted as Figure 38 on page 202 of Philip Henshall's 2000 book *The Nuclear Axis: Germany, Japan and the Atom Bomb Race, 1939-1945* with the claim it showed a nuclear attack. However, a careful reading of Dr Sänger's report shows an heavy incendiary bomb attack, not necessarily using a nuclear warhead (the gaussian or Bell distribution curve for thermal radiation is not based on a single bomb, but on the statistical distribution of a cluster of chemical incendiaries). *In other words, the basic Nazi plan was for annihilation using CONVENTIONAL WEAPONS.* A fact deliberately obfuscated!

In a 2006 book called *Nuclear First Strike: Consequences of a Broken Taboo* (John Hopkins University press), Professor George H. Quester argues (p5): "World War I did not involve weapons of mass destruction [ignoring all the gas], but it did impose mass destruction by ordinary weapons, once the unthinkable had happened ...", adding (p10): "What we expect the least may cause us the greatest damage and shock, if and when it occurs. The many different ways that nuclear weapons could again come into use range from the very major to the more minor. ... As to the physical impact of such an event, one can envisage nuclear escalations in which *no one* gets killed and escalations in which *millions* perish. ... As in all wars and war plans of the past, much will depend on what kinds of targets are hit." He adds (p12): "One often hears references to the 'taboo' on the use of nuclear weapons, but people usually have some difficulty in putting their finger on exactly what they mean by this term. ... it refers to something that we are not willing even to think about ... we simply reject the idea without further thought." (He argues on p15 that the "chemical weapons taboo" was broken by the 1995 nerve gas attack on the Tokyo subway, while the hijacked airliner terrorism taboo was broken by the 9/11 attacks on the World Trade Centre's Twin Towers in 2001, so calling a threat "taboo" is the height of stupidity.) On page 19, Quester argues: "Some of the scenarios will become possible because nuclear warheads will be improved to have lower yields of radioactivity and blast and heat ... destroying less of the surrounding countryside in the process of repulsing an armored attack. ... the advanced deep-penetration nuclear warheads of the United states or some other major power could be legitimately used to dig out and destroy such a [terrorist] bunker. The world would be less likely to condemn, and more likely to applaud, if the next use of nuclear weapons had the effect of preempting a WMD attack against a major population centre..."

Quester in Chapter 2, "Some Scenarios of Nuclear Escalation" of *Nuclear First Strike: Consequences of a Broken Taboo* describes seven kinds of escalatory nuclear war: beginning with "ambiguous attacks" exploiting the fog of surprise war by making it unclear whether there has even been a direct "attack" (which could be done by a high altitude EMP strike or "test" just outside the opponent's airspace, but ensuring the EMP effects reach the opponent; similarly a dictator can "secretly test" a fallout maximising bomb upwind from an opponent's territory, e.g underwater for the same kind of ambiguity), attacks with minimal collateral damage to civilians (e.g. tactical counterforce or high altitude EMP demonstration strikes deliberately over an opponent to intimidate them and their allies), or clear nuclear strikes that may be dressed up with the camouflage of "uncertainty" over who authorised them (are they "just" accidents, insubordination, madness, terrorism, etc?). Quester gives the example of an aircraft or drone crashing into a nuclear waste dump or reactor. Does this break a "nuclear taboo" or not? Do we respond to it by escalating to all-out strategic WWIII? Quester even goes as far as to raise the issue of a "fizzle", an inadvertent nuclear weapon misfire. If a state intentionally drops a megaton "demonstration" weapon, which misfires with only a low kiloton yield (instead of the intended one megaton) due to primary stage boost gas supply failure, it could be a "futile and ridicule provoking act..." (p27). On the other hand, Quester argues on the same page: "An entirely conventional attack could be mistaken for a nuclear attack" if modern high-yield conventional weapons (like WWII's massive "Grand Slam" and "Tallboy" bombs) were used, whose yields overlapped the yields of tactical nuclear weapons (providing that fallout samples were not readily available, which would depend on the depth of burst and weather). Thus Quester argues (p28): "one could imagine many cases of *false accusation* of nuclear weapons use..." The point is, if a dictator should feel any need to fake a "plausible excuse" for "nuclear retaliation", he could do so using this method of falsely accusing an opponent of first use! Again, Quester argues that the nuclear testing coercion method could be used to shut down an enemy with EMP, running back to Teller's 1945 argument with Oppenheimer over "testing" the first nuclear bomb over Tokyo Bay:

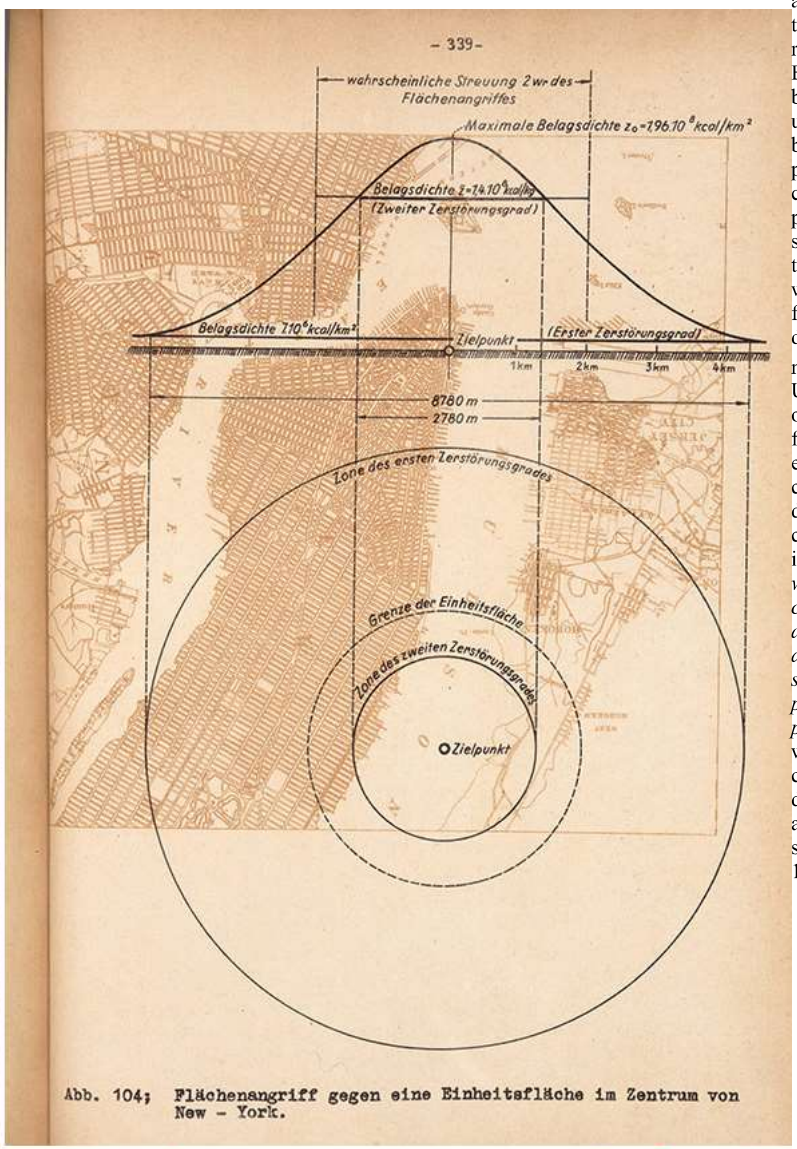
"Similarly ambiguous as to whether it should be counted as a violation of the nuclear taboo would be the initiation of nuclear testing during an ongoing crisis. While the intent would clearly be to intimidate and shake up the opposing side, most analysts would be quick to say that this does not really amount to a crossing of the line. In the past, the Soviets tested massive thermonclear weapons during periods of tension with the West. ... Such tests would have come closer to the line if they were conducted in close physical proximity to the opposing side or perhaps high in the air over some disputed territory or over international waters. ... Pushing such a marginal case further, a possessor of nuclear weapons might choose to conduct a 'test' detonation at the tensest time of some political or military crisis, a detination which might ... inflict substantial electromagnetic pulse (EMP) effects. Where the nuclear explosion did not directly violate the sovereignty of other countries, as determined by existing boundaries ... this might be viewed as nothing more than saber-rattling ..." - Quester, *Nuclear First Strike: Consequences of a Broken Taboo*, p29. Clearly this sort of "fog of war" attack could do immense economic damage (by shutting off electric power until massive custom-made transformers are repaired or replaced) without inviting MAD type retaliation; most people might want tit-for-tat deterrence, not escalation to a general countervalue WWIII. Again, the "mad general" or "Dr Strangelove" theory of "accidental" nuclear war can be illuminated by simple KGB/FSB style "Fourth Protocol" plots: Putin sent two agents to the UK with Novichok to launch a nerve agent attack in Salisbury in 2018. He denied the whole thing, but the fact is, he could similarly provide the agents with a nuclear device, smuggled in by Russian submarine and landed on a UK beach in an inflatable boat like those currently arriving with war-migrants from France! If he can arrange agents to fly in with Russian Novichok nerve agent, then why not "Fourth Protocol" style compact tactical nuclear weapon? If we can't discover or stop boats full of illegally entering war migrants, we similarly can't expect to discover or stop boats set loose with enemy agents armed with nuclear weapons, coming ashore from Russian ships or submarines far off our coast. Again, Putin revels in such "ambiguity" over his attacks, blaming his Novichok attack on the UK Government, for example. (This was similar in many ways to an earlier attack using polonium-210 in London in 2006.) This evidence proves the Russian "fog of war" tactics are real: if we plan only for a declared Russian attack, we are deluded! Quester goes on to examine (p43) the use of nuclear weapons within a country in a state of "civil war", e.g. if some Russian seized territory manages to put up a good fight for liberty, it is possible that tactical nuclear weapons could be used in those rebel-held parts of Russia to quell the rebellion, particularly low yield weapons that avert collateral damage to buildings. In Chapter 3, "Likely World Reaction", Quester argues that as in all "fog of war" cases, a wide range of media responses are possible, ranging from confusion over the facts to terror, hysteria, anger and outrage, so that (p60): "one has to find just the right retaliatory targets and still leave other targets untouched - as hostages kept alive to assure restraint by the guilty party."

Another problem of the "nuclear taboo" is the fact that smaller groups of countries bordering large states with huge armies might need to use tactical nuclear weapons for defense, simply to overcome that inequality in the conventional military manpower, as was the number one issue for NATO during the 1st Cold War (see quote below from Field Marshall Monty's 1954 article, "A look through a window at World War III"), but has now become Russia's policy in case of war with NATO! Nobody but a fool can call official enemy military nuclear defense plans a "taboo," and think this label means you can simply ignore them and not take precautions against them. If Russia did implement its tactical nuclear war plan



Dr Eugene Saenger, Nazi Long-Range Rocket and Bomber project, planned nuclear V2 attack

His 1933 thesis, Raketenflugtechnik, was a spaceship design, published as a book.

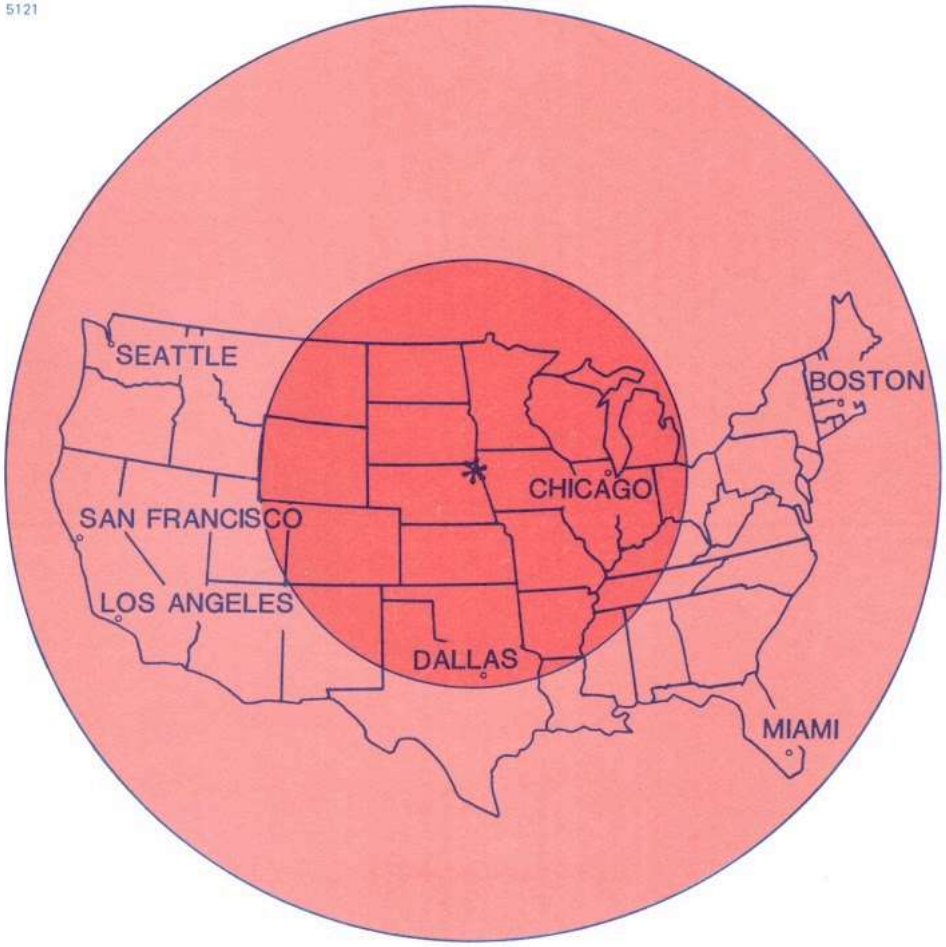


Saenger's top secret 1944 Nazi plan for a nuclear demonstration strike on New York to destroy American morale and win WWII, *Über einen Raketenantrieb für Fernbomber Fig 104, page 339.*

against NATO logistics during an escalation of the Ukraine-Russian war, it will use ambiguity to reduce the risk of effective NATO retaliation. E.g., clandestine nuclear attacks could be denied by the perpetrator. In this situation, a "no first use pledge" would prevent effective retaliation by the USA or NATO. You would have to try to prove the culprit, prior to retaliating. Russia could simply claim that a clandestine attack was part of a Western conspiracy to justify a first strike on Russia, or it could say that it was down to terrorists or rogue groups with stolen nuclear weapons. "Make noise in East, while attacking from the West" has been a key part of military diversionary tactics for millennia, and is all the more valid, according to Quester, with $E=mc^2$. Ultimately, after the nuclear taboo is broken for once and for all, we will be able to move away from moonshine talk of "nuclear thresholds" to enforcing "conventional thresholds" with credible tactical nuclear deterrence to ensure the dispersal of enemy military forces to concentrations too low for launching successful invasions (i.e., *if you have tactical nuclear weapons, dictators will be deterred from concentrating forces for an invasion, because doing so will create a nuclear target; war is then a matter of infiltration tactics which can be stopped by standard military security precautions at borders, producing a more peaceful world*). At that time, conventional warfare can be deterred, and humanity can concentrate instead on applying the nuclear deterrent spin-offs to peaceful technology, such as cheap and clean nuclear explosion-powered spacecraft (e.g. Project Orion, cancelled back in 1963 for purely political reasons).

E.M.P. blanket area for nuclear burst at 50 mile and 120 mile heights

Source: UK Marconi Radar Systems, "Military Shelters Technical Manual", page 82 quotation and illustrations

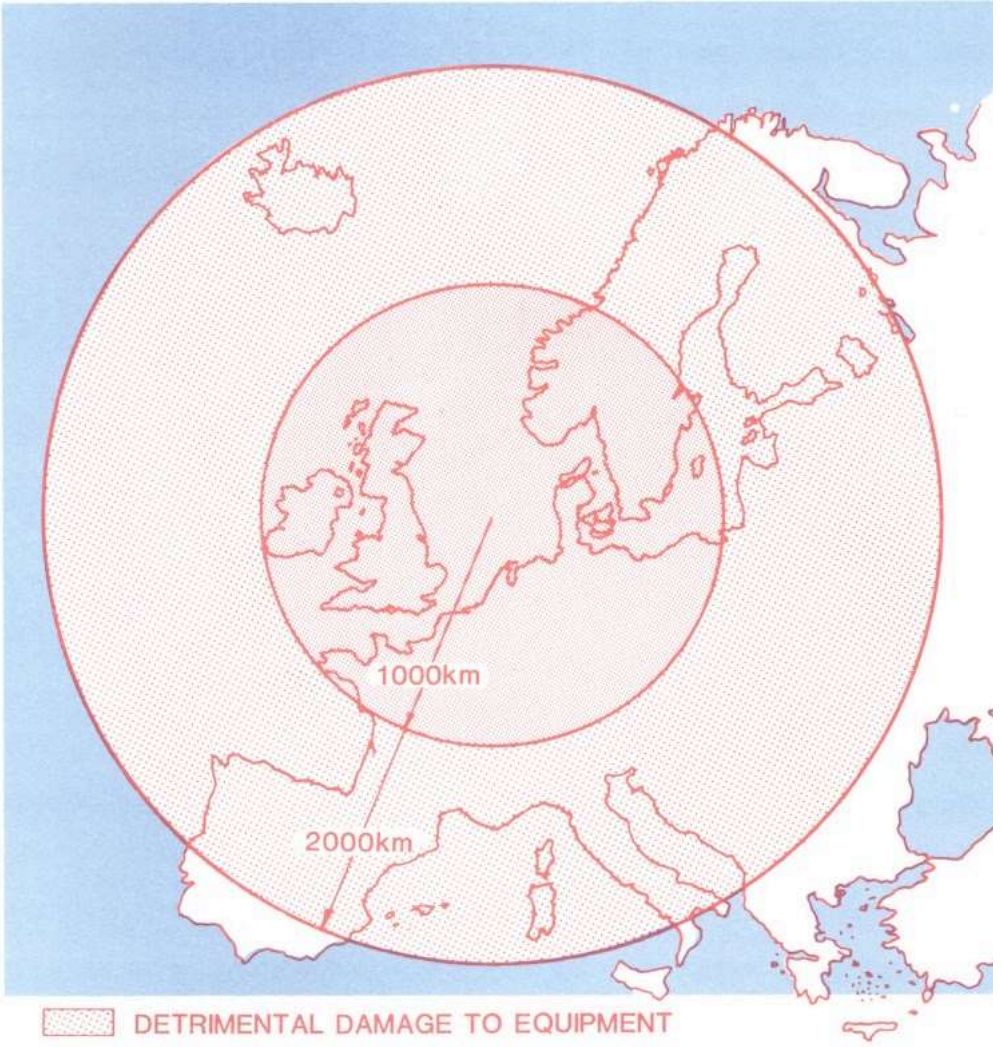


* POSITION OF NUCLEAR BLAST

INNER CIRCLE – COVERAGE IF DETONATED AT A HEIGHT OF 50 MILES

OUTER CIRCLE – COVERAGE IF DETONATED AT A HEIGHT OF 120 MILES

One megaton burst over the North Sea



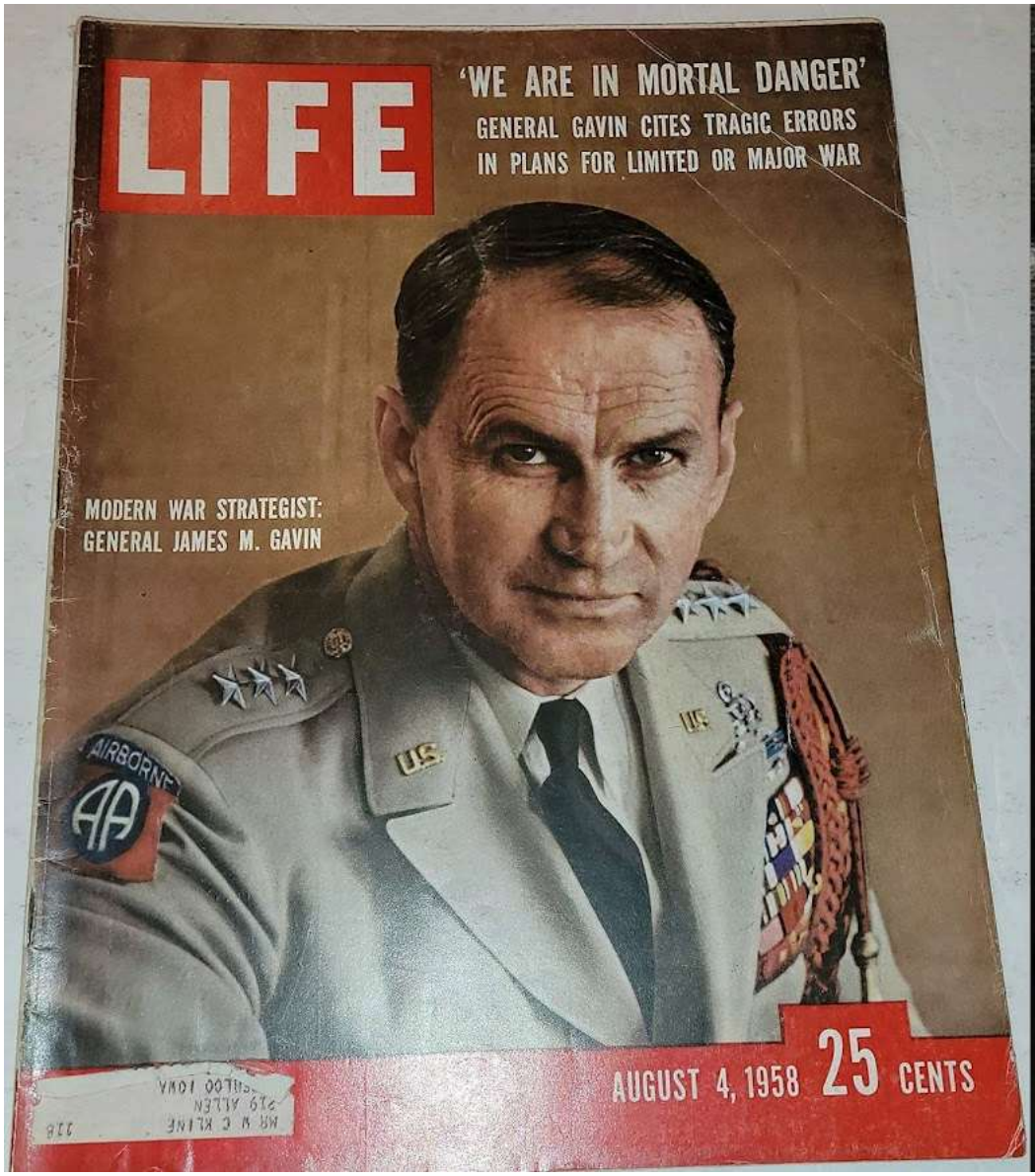
CONCLUSIONS

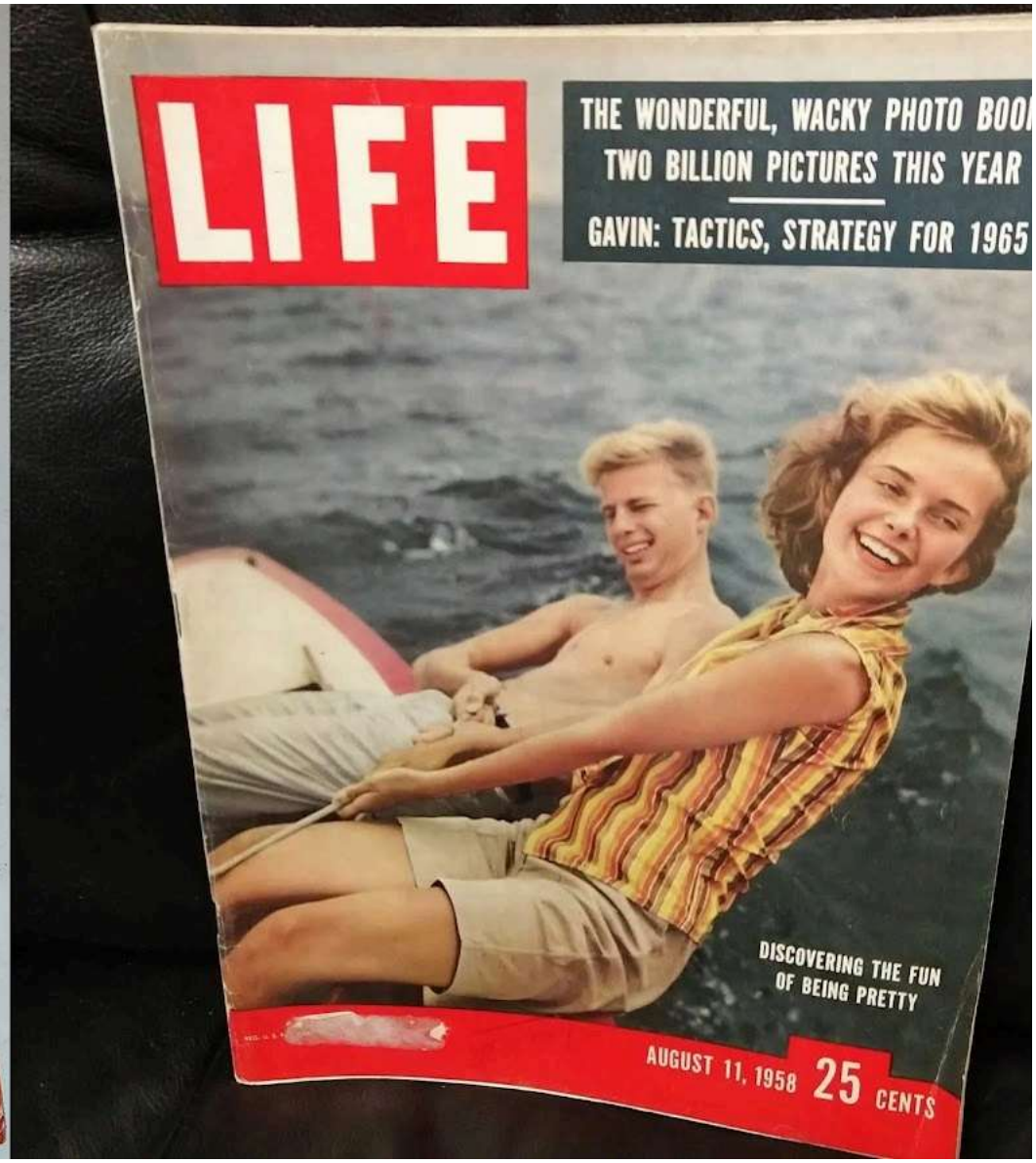
In essence then, electronic communication and power supplies

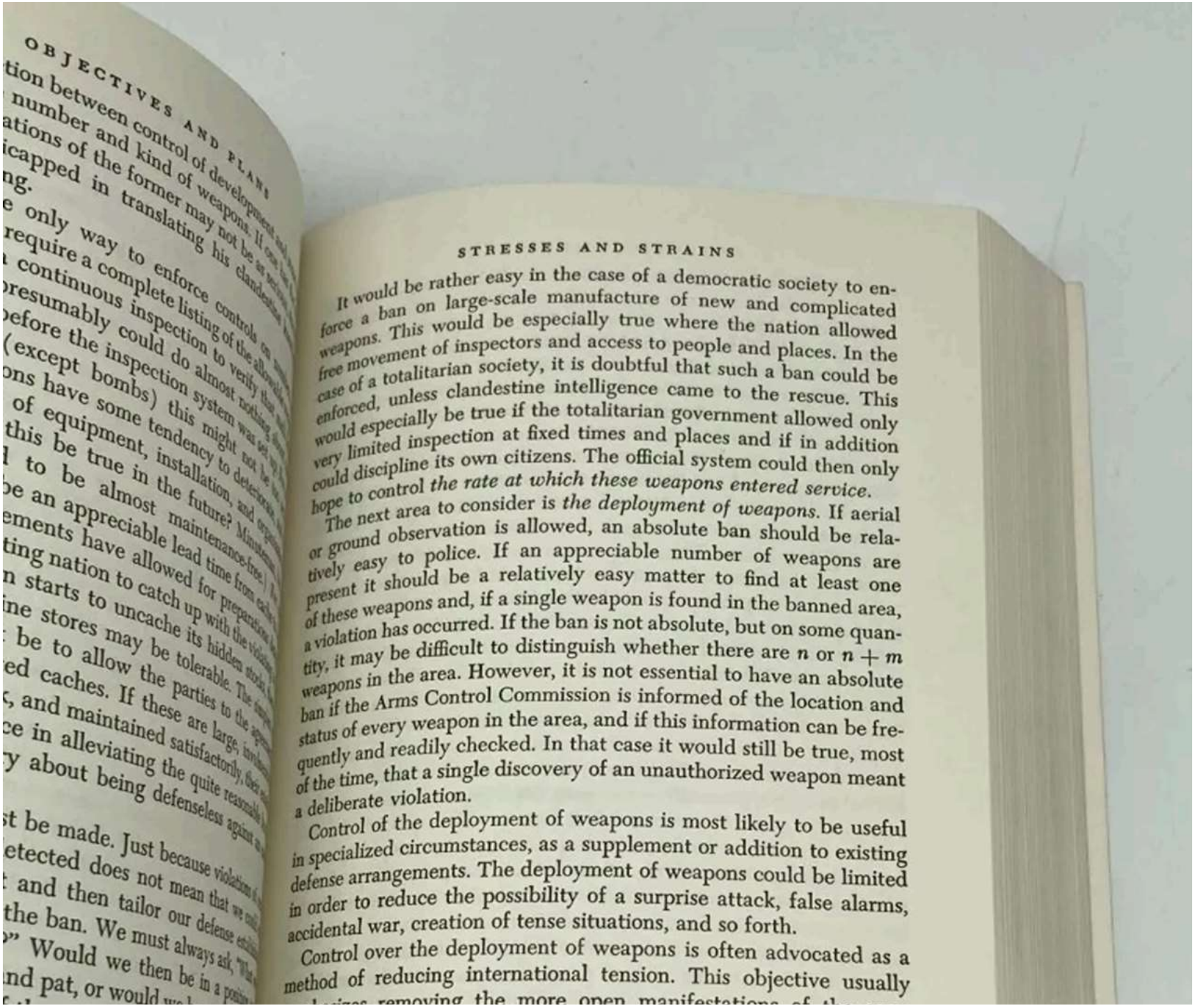
It is obvious that this whole subject of EMP protection has far reaching consequences for everyone.

From what has been said so far, it can be seen that a deliberate detonation of a nuclear weapon to maximise the EMP effect could and probably would occur in any future conflict. This could affect countries not even involved in the conflict itself.

In essence then, electronic communication and power supplies would cease to exist once an exo-atmospheric blast which produces a significant EMP has taken place. It is popularly supposed that this would be a temporary situation, but this is not the case and wide spread and immediate destruction of equipment would occur, which would take extensive repairs to correct. It is a sensible precaution to protect strategically important systems. The Marconi shelter range offers a cost-effective way of doing it.


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OBJECTIVES AND PLANS

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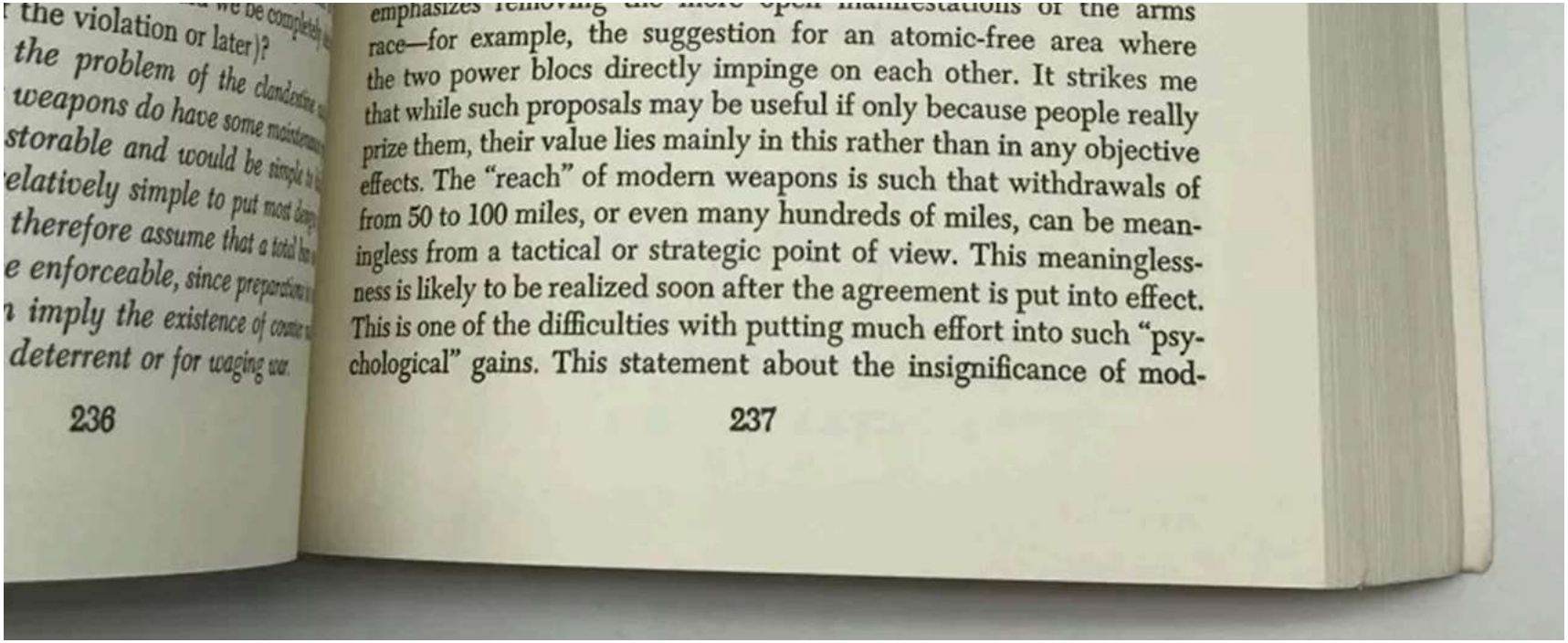
STRESSES AND STRAINS

It would be rather easy in the case of a democratic society to enforce a ban on large-scale manufacture of new and complicated weapons. This would be especially true where the nation allowed free movement of inspectors and access to people and places. In the case of a totalitarian society, it is doubtful that such a ban could be enforced, unless clandestine intelligence came to the rescue. This would especially be true if the totalitarian government allowed only very limited inspection at fixed times and places and if in addition could discipline its own citizens. The official system could then only hope to control *the rate at which these weapons entered service.*

The next area to consider is *the deployment of weapons.* If aerial or ground observation is allowed, an absolute ban should be relatively easy to police. If an appreciable number of weapons are present it should be a relatively easy matter to find at least one of these weapons and, if a single weapon is found in the banned area, a violation has occurred. If the ban is not absolute, but on some quantity, it may be difficult to distinguish whether there are n or $n + m$ weapons in the area. However, it is not essential to have an absolute ban if the Arms Control Commission is informed of the location and status of every weapon in the area, and if this information can be frequently and readily checked. In that case it would still be true, most of the time, that a single discovery of an unauthorized weapon meant a deliberate violation.

Control of the deployment of weapons is most likely to be useful in specialized circumstances, as a supplement or addition to existing defense arrangements. The deployment of weapons could be limited in order to reduce the possibility of a surprise attack, false alarms, accidental war, creation of tense situations, and so forth.

Control over the deployment of weapons is often advocated as a method of reducing international tension. This objective usually


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emphasizes removing the more open manifestations of the arms race—for example, the suggestion for an atomic-free area where the two power blocs directly impinge on each other. It strikes me that while such proposals may be useful if only because people really prize them, their value lies mainly in this rather than in any objective effects. The "reach" of modern weapons is such that withdrawals of from 50 to 100 miles, or even many hundreds of miles, can be meaningless from a tactical or strategic point of view. This meaninglessness is likely to be realized soon after the agreement is put into effect. This is one of the difficulties with putting much effort into such "psychological" gains. This statement about the insignificance of mod-

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ABOVE: Herman Kahn made a similar analysis to some of Quester's arguments back in 1960 in *On Thermonuclear War*, but he was similarly ignored (or subjected to lying hate attacks in the case of "Scientific American" propaganda) by leading "arms control and disarmament" bigots, leading to the Cuban missiles crisis of 1962, as we will prove below. Kahn explained that fake news "history" by CND's "historian" AJP Taylor lied about Hitler in order to avoid learning the lessons of 1930s appeasement and the actual reason for the failure of Dreadnought deterrence in 1914 (you need a spectrum of deterrents to cover all threats, not just one threat!).

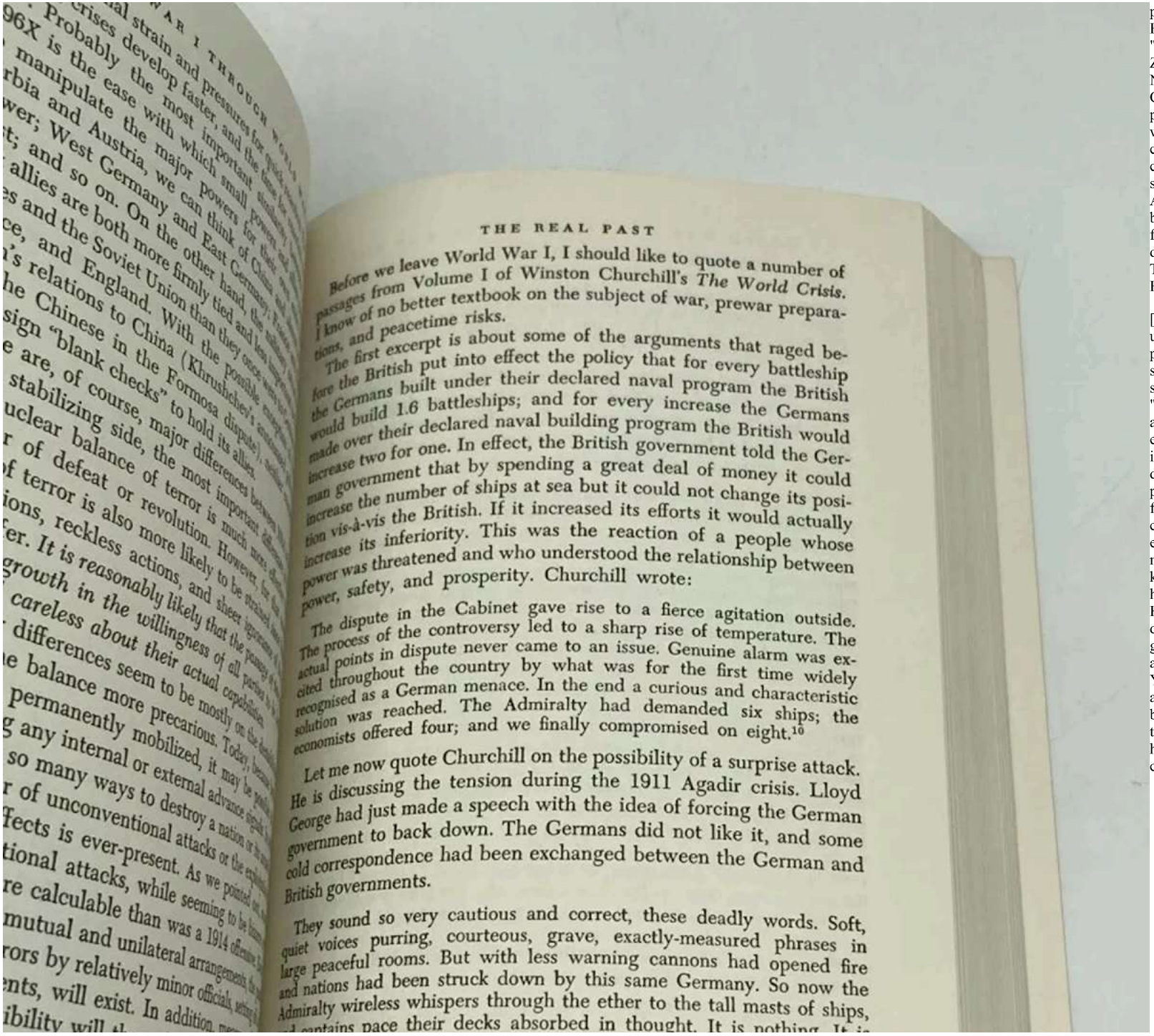
Professor Quester goes further in his 260 pages *Nuclear Zero? Lessons from the Last Time We Were There* (2015), arguing that spying on the Nazi nuclear weapons project in WWII failed to disclose the extent of their program due to dictatorial secrecy (until *after* Germany was invaded by General Groves' "Alsos" nuclear experts, too late), and he points out that in reality jaw-jaw-not-war-war failed in real crises before world wars (unlike the idealised "democracy vs democracy" imaginary world of the so-called "disarmers" that was debunked by Dr Spencer Weart's *Never at war: why democracies will not fight one another*) because (pages 1-3): "Messages that were intended to reassure would thus be seen as tricks. Countries fearing that others were cheating [as, for example, Russia did - even before Putin became effective Fuhrer - when it continued illegal Novichok production under Yeltsin as disclosed by Dr Vil S. Mirzayanov in his 2009 *State Secrets: An Insider's Chronicle of the Russian Chemical Weapons Program*] on the nuclear weapons ban, or fearing that they themselves would be falsely accused of cheating, would thus feel driven, themselves, to cheat. [Manhattan Project in USA was supposedly secret nuclear weapons program in a "democracy", as was the UK nuclear weapons program under hard line socialist Attlee, who covered it up from public sight until Churchill was elected and had to announce it prior to the first UK nuclear test in 1952; basically every damn nuclear weapon proliferation program has been clandestine, for obvious reasons, regardless of whether in a "democracy" or a "dictatorship", while every damn "pacifist" has claimed that it is absurd that any country could secretly produce nuclear weapons in a disarmed world]. ... there may be false alarms in a future world about whether someone else is cheating and producing nuclear weapons. ... some rogue state might seize upon nuclear weapons as a reinsurance against being subjected to regime change ... when it had been convicted of massive genocide within the territory it had controlled. ... The sad possibility remains that what is dismissed [by arms control/disarmament propaganda arguments] as hypothetical here would turn out to be recurrent and quite natural, as countries disagree and regimes contend."

Quester then argues in *Nuclear Zero? Lessons from the Last Time We Were There*, page 6, that the whole problem stems from science fiction, namely left winger (Stalin interviewer/apologist) Mr H. G. Wells' 1914 *World Set Free* because the key physical fact, the multiplying neutron induced chain reaction, came to Leo Szilard in London in 1934, just after he had read Wells' novel, which coincided with him hearing a Rutherford lecture on the neutron (predicted by Rutherford and in 1932 discovered by his student, Chadwick, who headed the British Mission to Los Alamos, and also designed our first 3-stage top secret UK H-bomb idea). *Szilard had recently arrived in London from Germany, fleeing the Nazis, and was obsessed with the Nazi risk, so you could argue that Hitler was responsible for nuclear weapons development, in this manner; as a chemist expert in chemical chain reactions like explosions, and an obsessive patenter of ideas, Szilard patented his basic ideas for neutron-induced nuclear fission chain reactions for energy release in London in 1934, although at that time he had no idea about which isotopes to try!* This proves that lone individuals, not just top secret military committees, can come up with key ideas! Szilard (like Churchill, but unlike the "pacifists" in the UK at the time, including the elected government and most voters) was aware that Germany was capable of secret weapons development and manufacture *in violation of disarmament agreements it had signed up to following WWI*. Quester argues (p9): "On the dimension of secrecy, the Germans had also become accustomed to violating the disarmament provisions of Versailles as much as possible, with virtually every German in effect being part of a patriotic conspiracy to deny information to the inspectors representing the victors of World War I [one exception was Captain WE Johns, editor of the two UK magazines Popular Flying and Flying, who was secretly provided information on German rearmament by the Commandant of his former POW camp in Bavaria, which he published in his magazine to the wrath of the government - e.g. see his January 1934 Popular Flying "Where Stands Germany?" 3-pages long article which directly warned that Germany was rearming for war, also the Disarmament Commission which in response to such articles dismissed the magazine as a warmonger, before Chamberlain's government put pressure on its publisher to get Johns fired in January 1939, a disgusting travesty of "democracy" obviously censored out of all milk-and-water, half-baked "history books" on appeasement methodology written by the AJP taylor school of CND biased lying drivel]. ... The Weimar experience unhappily shows that even a political democracy {and after Weimar, even Hitler was *initially elected by voters*], if it feels unfairly treated in terms of international affairs, can accept policies of secrecy and cheating on international commitments." Quester then argues that the only reason we're not living in the 1,000 year Third Reich is that Walter Bothe's boron electrodes contaminated neutron moderating carbon graphite with a strong neutron absorber, a practical error "left unchallenged" by the practically incompetent uncertainty principle Nazi theorist Heisenberg, so the Nazis thought expensive heavy water (not cheap

graphite) was needed for fission of natural uranium. As a result, the delicate heavy water distillation stills were repeatedly sabotaged and bombed, preventing a Nazi nuclear bomb and success in WWII. *This very lucky error will never be made again!*

Finally, Quester argues that the very effective (thus rejected!) postwar Bernard Baruch nuclear weapons disarmament plan was debunked by the United Nations "veto" problem (*Nuclear Zero? Lessons from the Last Time We Were There*, page 109): "... Baruch is particularly castigated for insisting that there be very strict inspection of a nuclear-disarmed world, and, where violations were detected of the pledge not to produce nuclear weapons, that the punishments for this not be subject to the veto in the United Nations Security Council." THIS IS THE KEY PROBLEM AS PROVED BY ALL DATA. Whenever you bring up the 1930s experience, someone argues "all we need is policemen to replace the nuclear arsenals." The UN was supposed to do this, but failed like the League of Nations with the Nazis, because if you have the enemy on the Security Council, they veto any proposal to stop their invasions of you. Duh. Baruch wasn't that dumb. He realised, from Hitler and Stalin's invasions of 1939-40, that you need *automatic* enforcement to stop threats to world peace, not some plan that the enemy will simply veto (pages 111-2):

"... some of this skepticism about Baruch's logic may overdo the 'realist' assumption that all powers [dictators and democracies] are alike ... When confronting a brazen and tough-minded foreign dictatorship, such democracies are often unwilling to bite the bullet of actually condemning foreign violations of disarmament agreements, instead drawing one 'red line' after another about actions that will not be tolerated ... negotiation rather than actual punishment of the violator. Such was the experience of the victorious allies in World War I as even the democratic Weimar Republic repeatedly violated its pledges at Versailles. It certainly was the experience of the British and French when confronting [with smiles, flowers, and handshakes, in front of Nazi flags or saluting crowds in popular praised mass media photos] Hitler, even before Munich. More recently, this has been the experience of the United Nations in confronting [sic] violations of nonproliferation pledges by North Korea, iran, and Iraq, before the overthrow of Saddam Hussein. Clausewitz captured a great deal of the dilemma here in his statement that 'the aggressor is always peace-loving', since a tough-minded aggressive regime can always violate agreements ... then confront the rest of the world with the choice of remaining at peace or of initiating a war. ... World War II began in Europe not in March of 1939 when the Germans violated pledges by invading the rest of Czechoslovakia, but in September 1939 when ... the Poles *did* resist. **It is the side that *resists* an aggression that makes it a war ...** [This is the key



THE REAL PAST

Before we leave World War I, I should like to quote a number of passages from Volume I of Winston Churchill's *The World Crisis*. I know of no better textbook on the subject of war, prewar preparations, and peacetime risks.

The first excerpt is about some of the arguments that raged before the British put into effect the policy that for every battleship the Germans built under their declared naval program the British would build 1.6 battleships; and for every increase the Germans made over their declared naval building program the British would increase two for one. In effect, the British government told the German government that by spending a great deal of money it could increase the number of ships at sea but it could not change its position vis-à-vis the British. If it increased its efforts it would actually increase its inferiority. This was the reaction of a people whose power was threatened and who understood the relationship between power, safety, and prosperity. Churchill wrote:

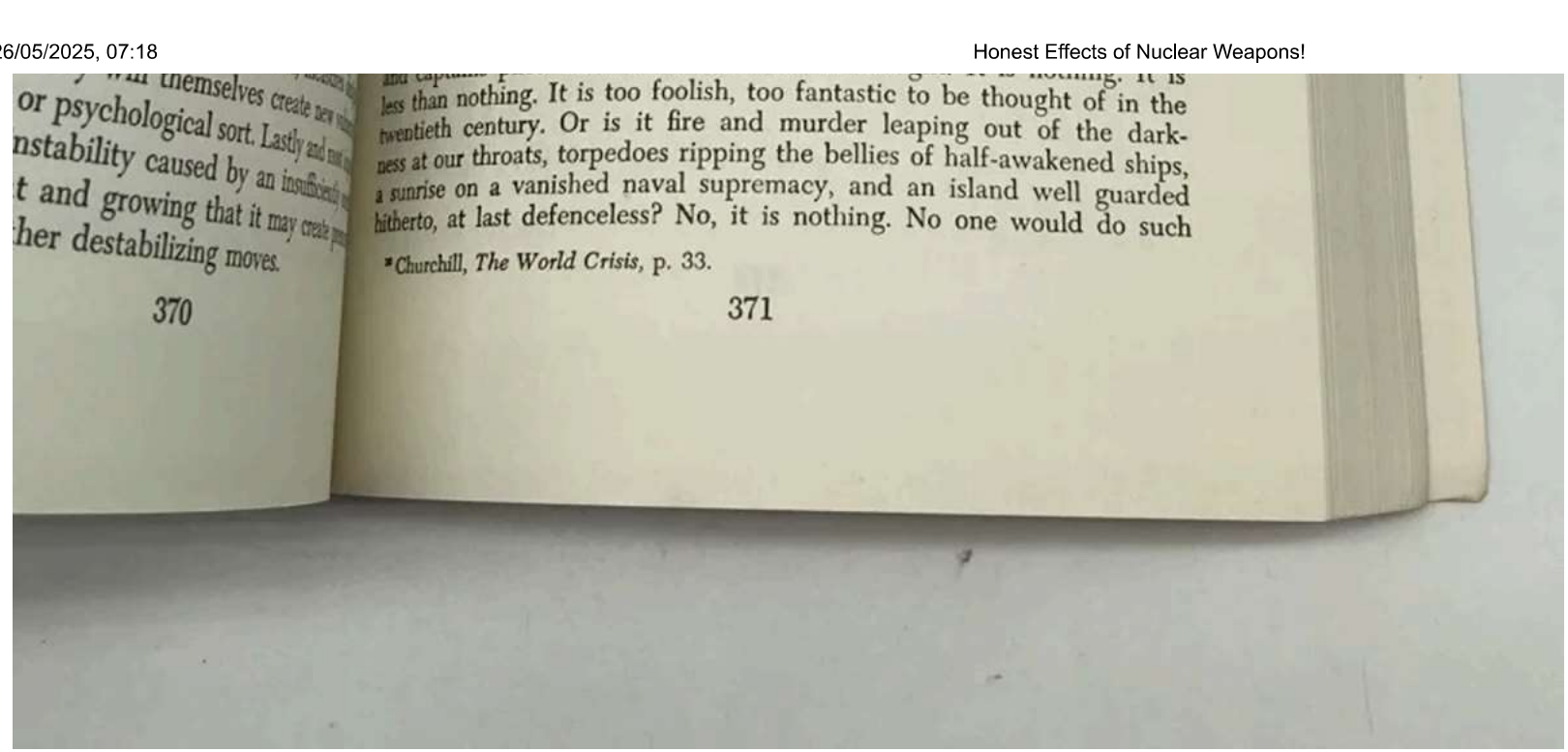
> The dispute in the Cabinet gave rise to a fierce agitation outside. The process of the controversy led to a sharp rise of temperature. The actual points in dispute never came to an issue. Genuine alarm was excited throughout the country by what was for the first time widely recognised as a German menace. In the end a curious and characteristic solution was reached. The Admiralty had demanded six ships; the economists offered four; and we finally compromised on eight.[10]

Let me now quote Churchill on the possibility of a surprise attack. He is discussing the tension during the 1911 Agadir crisis. Lloyd George had just made a speech with the idea of forcing the German government to back down. The Germans did not like it, and some cold correspondence had been exchanged between the German and British governments.

> They sound so very cautious and correct, these deadly words. Soft, quiet voices purring, courteous, grave, exactly-measured phrases in large peaceful rooms. But with less warning cannons had opened fire and nations had been struck down by this same Germany. So now the Admiralty wireless whispers through the ether to the tall masts of ships, and captains pace their decks absorbed in thought. It is nothing. It is

point. To the Nazi fellow travelling 1939 "peacenik", Hitler was a man to be reasoned with. Indeed he was a "man of peace" by CND standards, in which pesticide Zyklon B in gas chambers as recommended by such Nobel prize winners as Medical Nobel Laureate Alexis Carrell's nazi-bestselling *Man the Unknown* is an act of peace, unlike the so-called "barbarity" of nuclear weapons deterring world war. These thugs simply censor out all the evidence that disproves them, like certain other holocaust deniers.] ... The 'Munich syndrome' is often criticised for excessively governing American responses to the Communist ... yet it has to be remembered that the lessons of Munich and the failure to confront Hitler, were very parallel to ... desire to beat the Nazis in a race for nuclear weapons. The opponent in both cases after all was the same Hitler."

[We're a bit critical of Quester's argument style here, unfortunately. His analysis is illuminating, but the problem is, as for Herman Kahn's discussion of the same thing in *On Thermonuclear War,* all the subversively supporting/fellow travelling so-called fact "critics" - who express undying love for authoritarianism and dictatorship in all its pathetic and evil forms, and instead - as explained by Orwell clearly in *1984* see freedom as terrorism fill the left wing dominated traditional media including TV, book publishing, magazines, and overpaid government funded "big science" and will just ignore subtle or complicated arguments, especially where they are effective. You are fighting a war against thugs so you must try to use words like bullets, not keep to some kind of unbiased intellectual debate on the abstract hypothetical philosophy of alien species. That was Herman Kahn's key error in 1960! This is a matter of deterring tyranny, not holding a polite tea party parlour game of chess, which ends peacefully. Millions of lives are at stake. Be as lucid and direct as possible, please. Yes, in the UK the Russian supporting terrorist thugs are now trying to censor Orwell's *1984* from schools because it doesn't fit their agenda. But when those who tell the truth are in risk of being drowned out by hoardes of lying thugs, truth must aim for maximum clarity!]



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less than nothing. It is too foolish, too fantastic to be thought of in the twentieth century. Or is it fire and murder leaping out of the darkness at our throats, torpedoes ripping the bellies of half-awakened ships, a sunrise on a vanished naval supremacy, and an island well guarded hitherto, at last defenceless? No, it is nothing. No one would do such

*Churchill, *The World Crisis*, p. 33.

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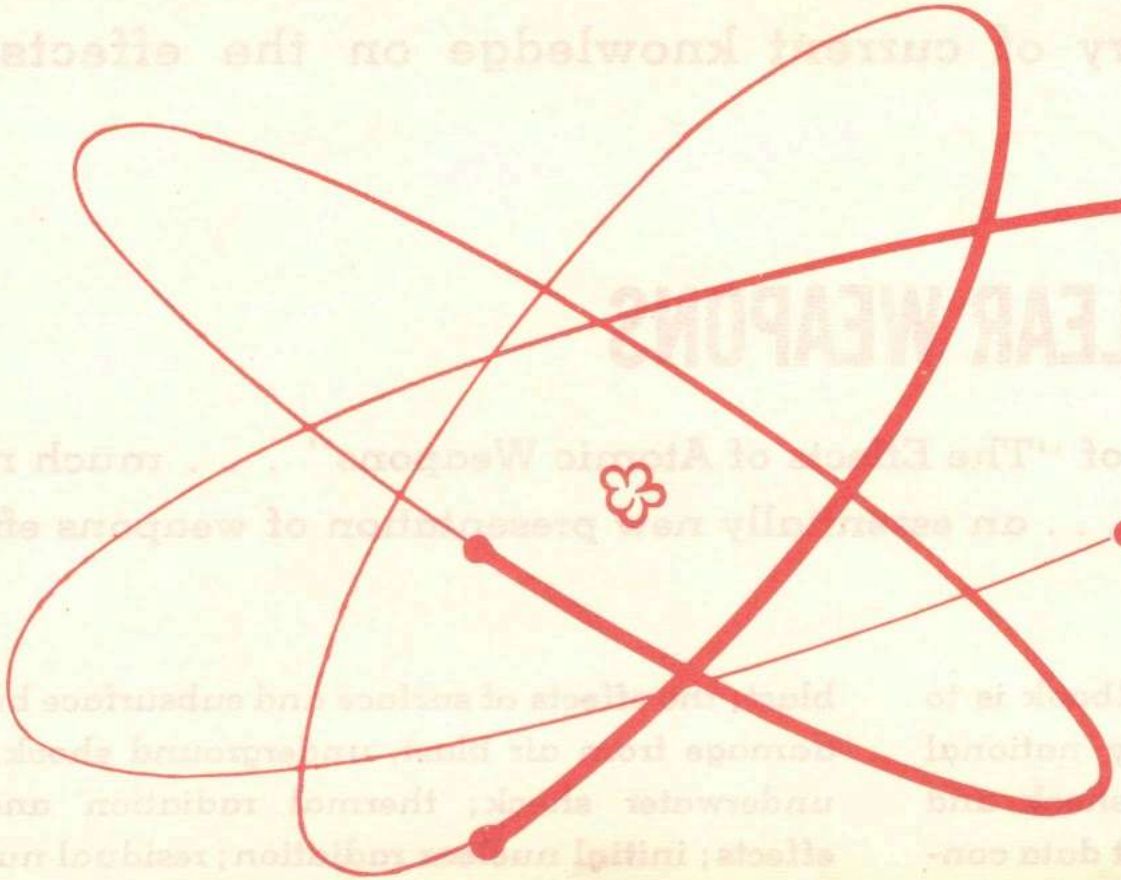
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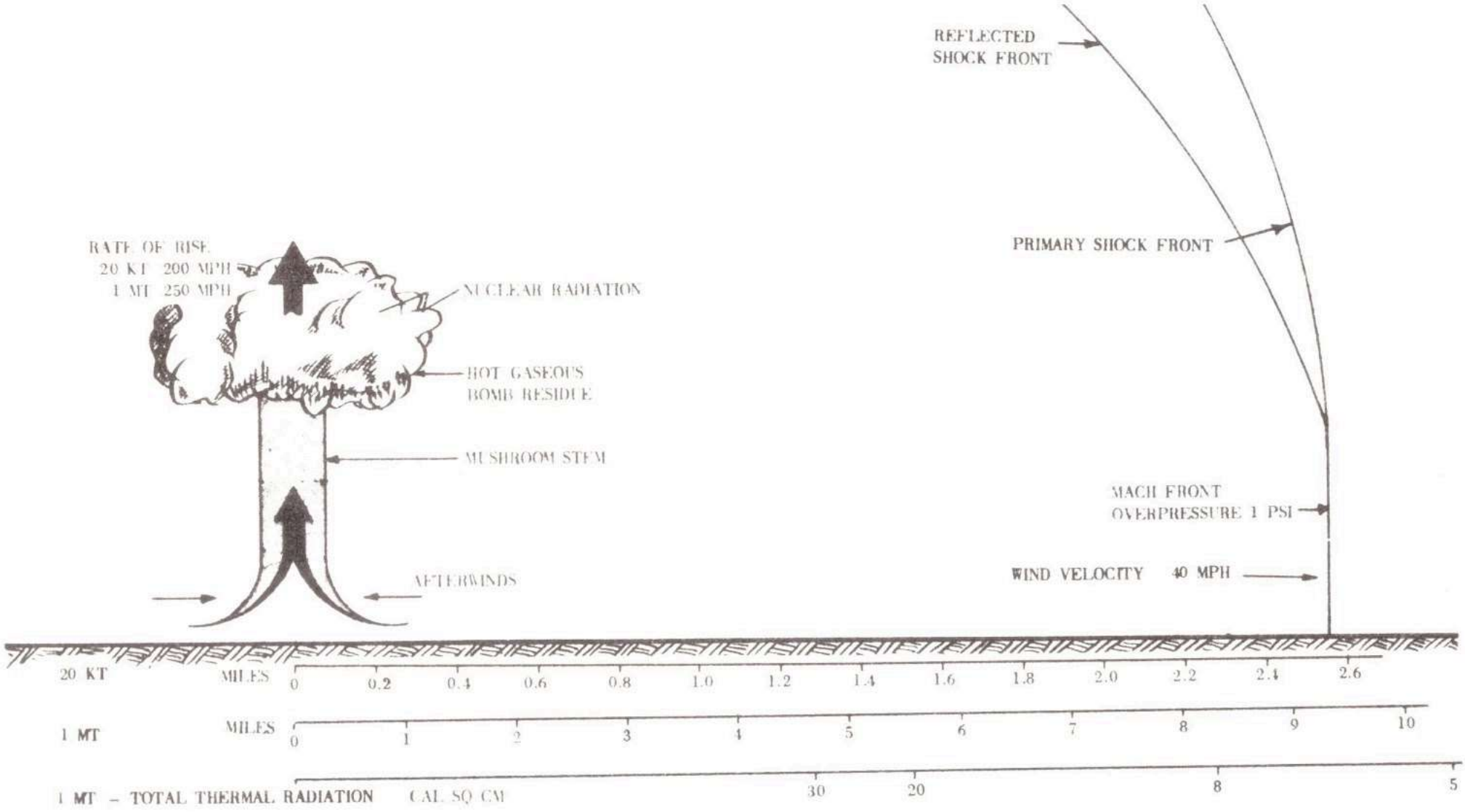


Figure 2.47d. Chronological development of an air burst: 10 seconds after 20-kiloton detonation; 37 seconds after 1-megaton detonation.

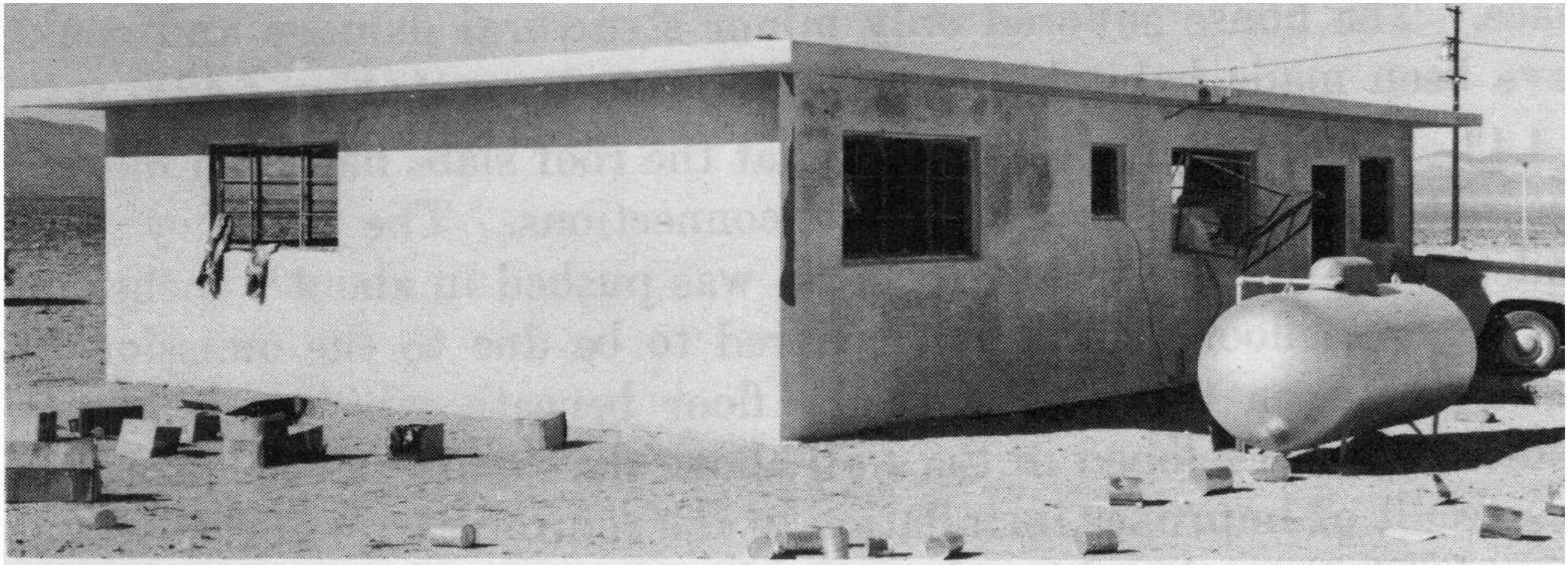


Figure 4.38. Reinforced precast concrete house after the nuclear explosion (psi overpressure). The LP-gas tank, sheltered by the house, is essentiall undamaged. Glasstone 1957 Effects of Nuclear Weapons: concrete buildings are blast resistar

may have one of the three forms indicated, according to the nature of the structure. The slope of the resistance-deflection curve in the elastic region is represented by K_1, whereas in the plastic region it is K_2. The maximum deflection to failure (or deflection prescribed for analysis) is indicated by X_m.

6.100 For reinforced-concrete or steel structures the dynamic resistance curve is derived from the static resistance-deflection curve by adding 20 percent to the values of the dynamic resistance at both X_e and X_m, i. e., at the points representing the yield and maximum deflections, respectively. For structures of masonry, wood, or metal, other than steel, the static resistance curve may be used. If the true static resistance curve is found to be of the form shown by the full curve in Fig. 6.100, it may be approximated by two (dashed) straight lines, the area under the "approximate curve" being equal to that under the "true curve."

Fundamental Period of Vibration

6.101 The fundamental period of vibration, T, of a structure is expressed by

$$T=2\pi\sqrt{\frac{M_e}{K_1}}, \qquad (6.101.1)$$

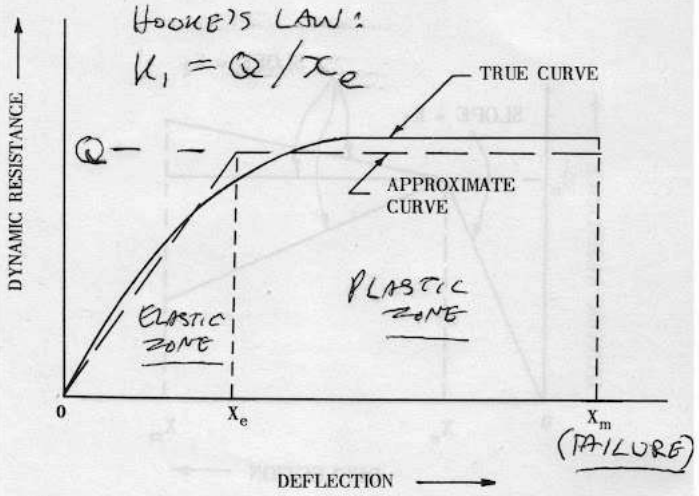


Figure 6.100. True and approximate dynamic resistance-deflection curve.

Peak Force-Deflection Relationship

6.105 With the necessary data secured in the manner described above, the solution of the structural response problem is obtained from the equation,

$$\frac{F}{Q_e}=\frac{T}{\pi t_1}(\sqrt{A}-\sqrt{D})+\frac{A-D}{2\frac{X_m}{X_e}\left(1+0.7\frac{T}{t_1}\right)}, \qquad (6.105.1)$$

where

$$A=2\frac{X_m}{X_e}-1+\frac{K_2}{K_1}\left(\frac{X_m}{X_e}-1\right)^2$$

and

$$D=\left(\frac{2\pi I}{Q_e T}\right)^2 \text{ or } D=0 \text{ if } I \text{ is not computed.}$$

For convenience in the application of equation (6.105.1), the various symbols involved, all of which have been defined previously, are given below, together with their usual units:

F = peak force in pounds (see Fig. 6.102)
t_1 = duration of equivalent linear loading in seconds (see Fig. 6.102)
Q_e = yield resistance in pounds (see Fig. 6.99)
T = fundamental period of vibration in seconds (see equation (6.101.1))
I = initial impulse in pound-seconds (see Figs. 6.79, 6.87, and 6.102)
X_e = yield deflection in any units (see Fig. 6.99)
X_m = maximum (or prescribed) deflection in same units as X_e (see Fig. 6.99)
K_1 = slope of dynamic resistance-deflection curve in elastic region (see Fig. 6.99)
K_2 = slope of dynamic resistance-deflection curve in plastic region (see Fig. 6.99).

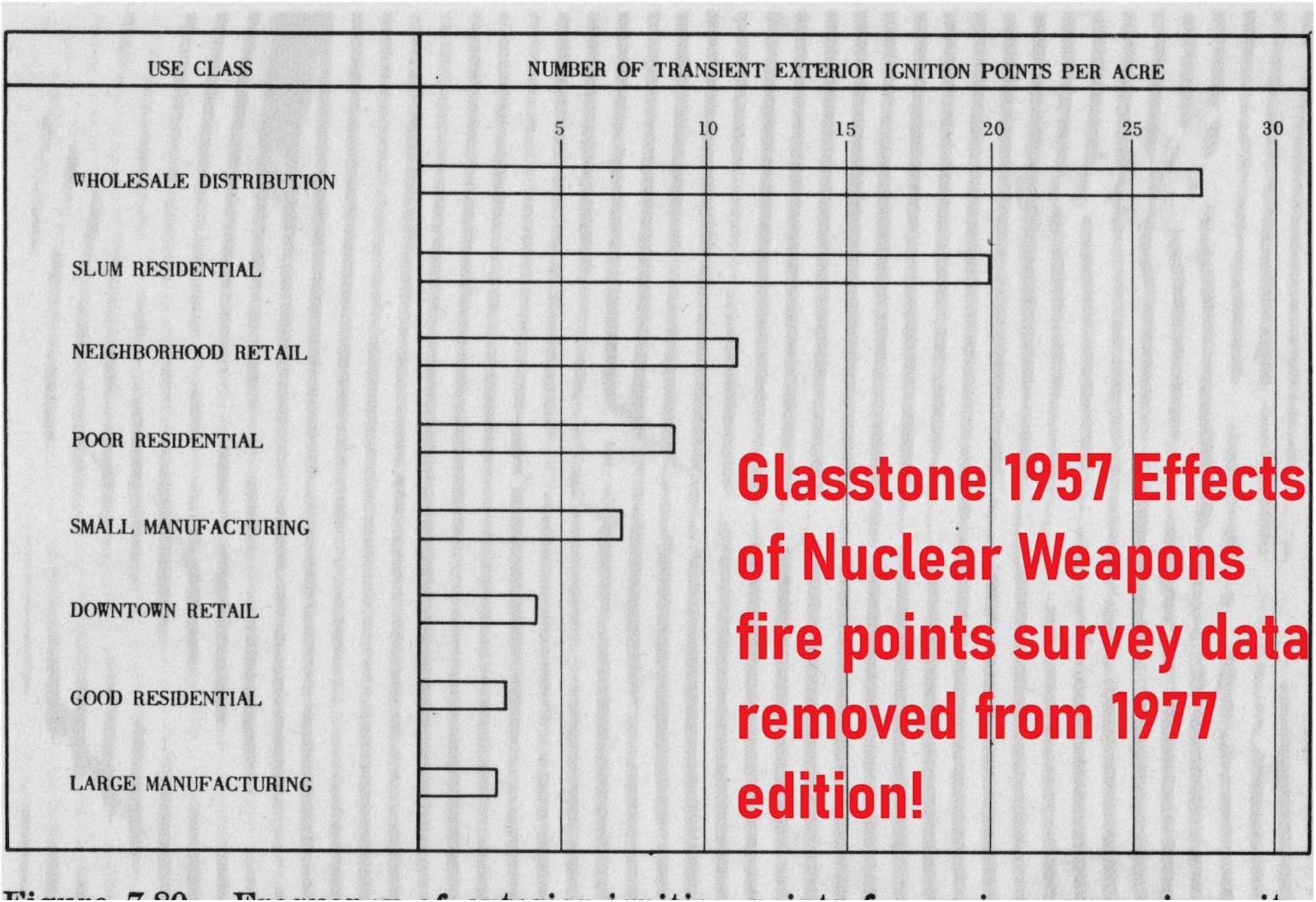
6.106 There are two general types of problems which may be solved with the aid of equation (6.105.1). If the load is prescribed, e. g., a given distance from an explosion of a specified yield, so that F may be regarded as known, the corresponding deflection, X_m, can be determined. Alternatively, if the maximum (or prescribed) deflection,

X_m, is given, the corresponding value of F can be calculated. either case, the solution must be approached by a series of appr mations.

6.107 If the load is specified, so that F and t_1 may both be rega as known, a provisional value of X_m must first be estimated and checked by means of equation (6.105.1). A new value is then t and so on, until agreement of the two sides is obtained. On the o hand, if a particular deflection, X_m, is decided upon to represent degree of damage that can be tolerated or that is not to be excee the calculation of F is somewhat more difficult, since t_1 is also unkn and this is dependent upon F. It is necessary, therefore, to gue linear function for the variation of the force with time, so as to t_1. With this, an approximate value of F is determined from e tion (6.105.1), and a check of the guessed function is then made. permits a new estimate of t_1, and the process is repeated until a s factory solution is obtained.

6.108 The use of the procedure just described can involve an e when the dynamic resistance curve shows the structure to be unst i. e., when K_2 is negative. The solution to a problem of determi the value of F to produce a deflection X_m may then imply that a gre force F is required for a smaller value of X_m. It is necessary, th fore, to check this possibility. For cases in which K_2 is negative, first determined for a certain X_m, say 2 feet, then F is redeterm for a somewhat smaller value of X_m, say 1.8 feet, which is greater t X_e but close to the original X_m. If the second value of F is gre than the first, the calculations must be continued to determine maximum value of F, called F_m, which is associated with X_m. any greater value of the deflection X_m, the force F_m is still requi

Calculation of maximum (peak) deflection of the centre of mass of a building by air blast loading in the 1957 edition of Glasstone's "Effects of Nuclear Weapons". THIS PREDICTION METHOD FOR MAXIMU DEFLECTION WAS REMOVED FROM ALL FURTHER EDITIONS. It enables straightford calculation of th energy removed from air blast by work doneand t energy absorbed from the blast in oscillating a building, E = Fx,



Glasstone 1957 Effects of Nuclear Weapons fire points survey data removed from 1977 edition!

Figure 7.80. Frequency of exterior ignition points for various areas in a city.

1953, 2 FLT ENCORE

fence, were exposed to 12 calories per square centimeter of thermal radiation. One house, at the left of Fig. 7.82, had weathered siding showing considerable decay, but the yard was free from trash. The next house also had a clean yard and, further, the exterior siding was well maintained and painted. In the third house, at the right of the photograph, the siding, which was poorly maintained, was weathered, and the yard was littered with trash.

7.83. The state of the three houses after the explosion is seen in Fig. 7.83. The third house, at the right, soon burst into flame and was burned to the ground. The first house, on the left, did ignite but it did not burst into flame for 15 minutes. The well maintained house in the center with the clean yard suffered scorching only. It is of interest to recall that the wood of a newly erected white-painted house exposed to about 25 calories per square centimeter was badly charred but did not ignite (Fig. 7.34b).

7.84 The value of fire-resistive furnishing in decreasing the number of ignition points was also demonstrated in the 1953 tests. Two

ber of ignition points was also demonstrated in the

Glasstone 1957 effects data removed from 1977 edition



Figure 12.40b. Earth-moving equipment subjected to nuclear blast in open terrain (30 psi overpressure).

Met nuclear test (Glasstone 57)



Figure 12.40c. Earth-moving equipment protected in deep trench at right angl to blast wave motion (30 psi overpressure).

Glasstone 1957 Effects of Nuclear Weapons showing blast walls factories and power stations in Nagasaki, permitting RAPID RECOVERY!

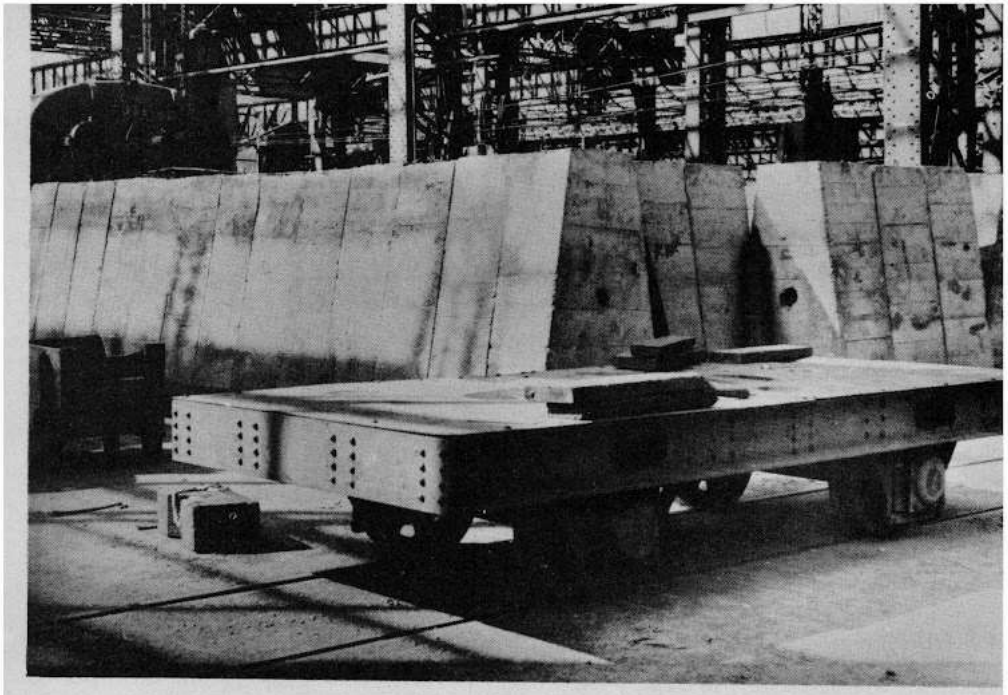


Figure 12.37a. Precast, reinforced-concrete blast walls (0.85 mile from ground zero at Nagasaki).

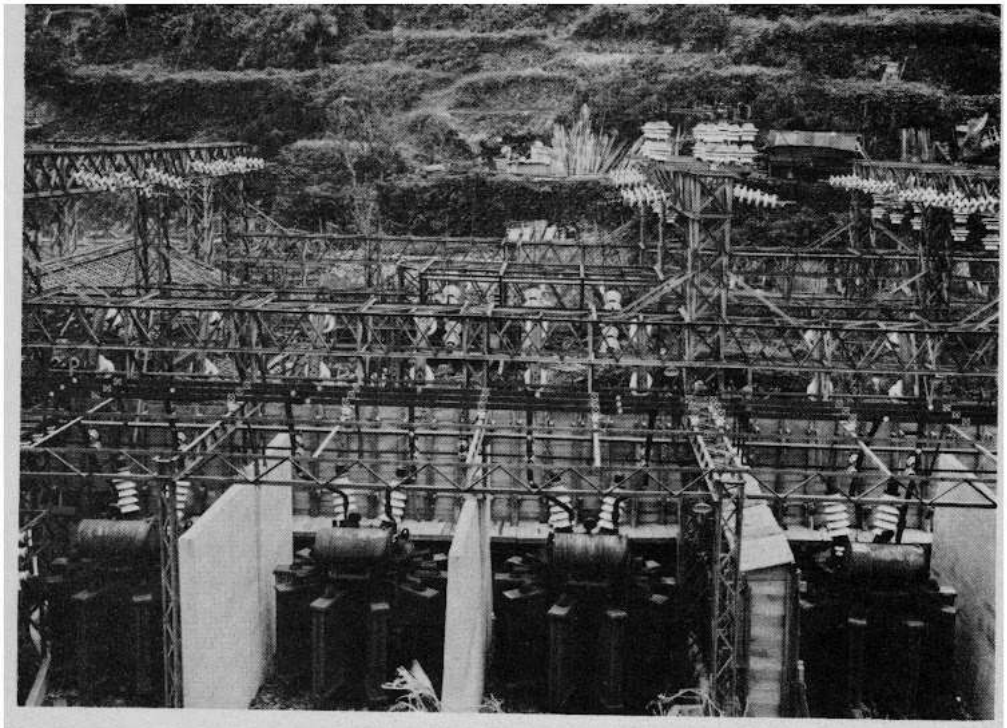


Figure 12.37b. Reinforced-concrete blast walls protecting transformers (1 mile from ground zero at Nagasaki).

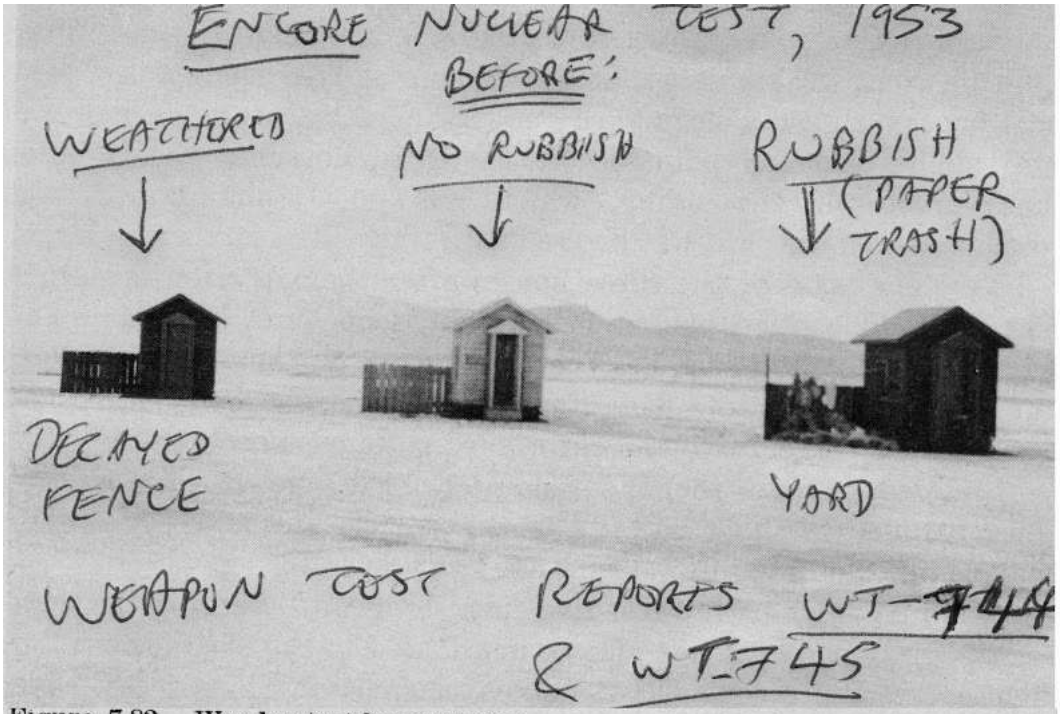


Figure 7.82. Wooden test houses before exposure to a nuclear explosion, Nevada Test Site.

Glasstone 1957

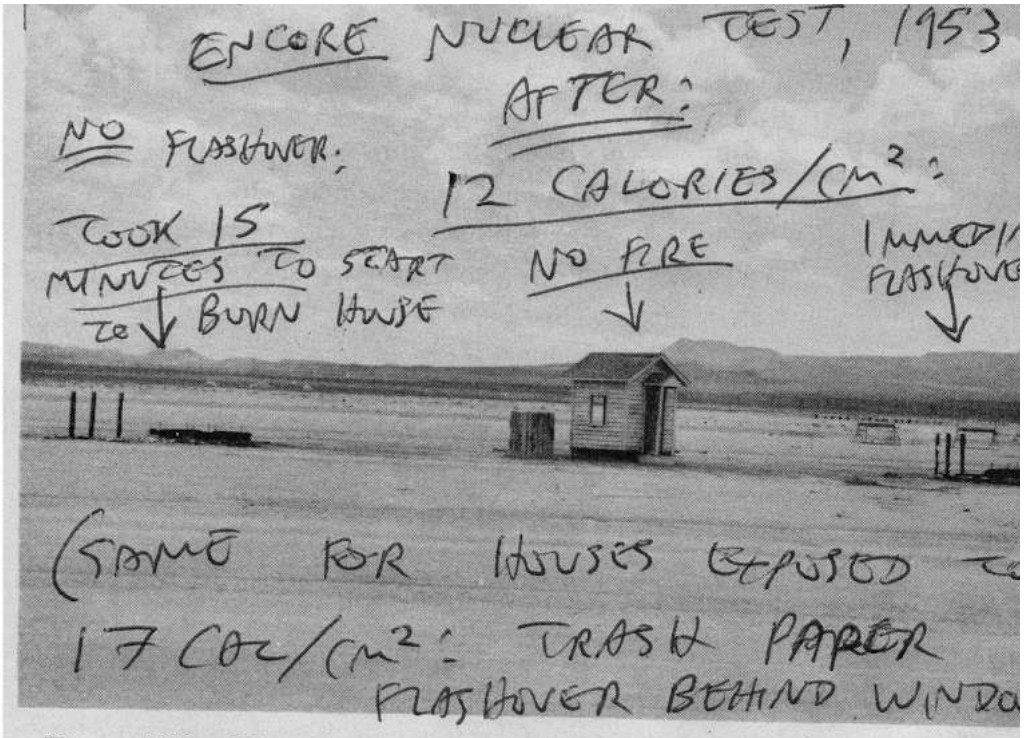


Figure 7.83. Wooden test houses after exposure to the nuclear explosio

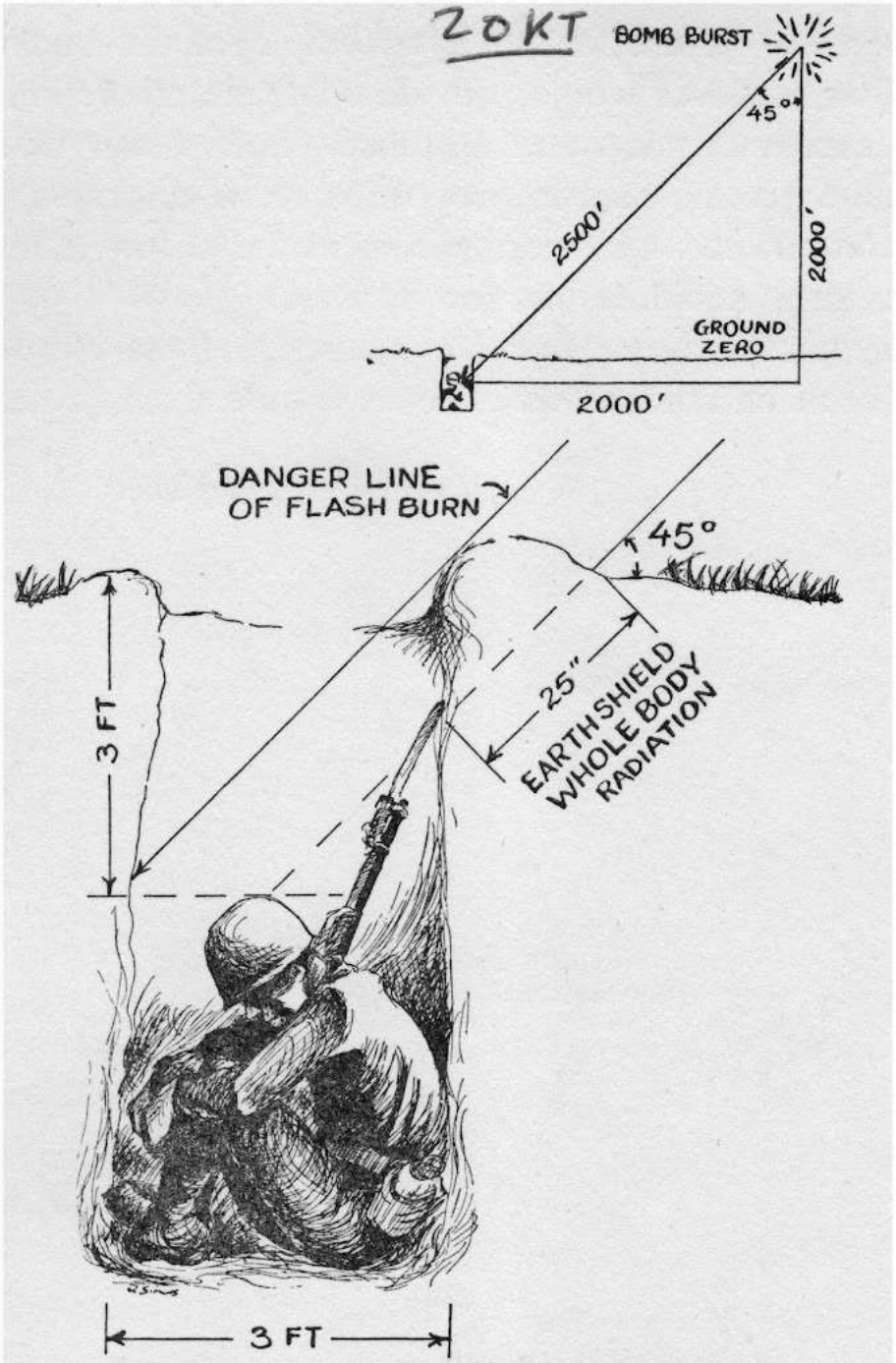


Plate 18. Foxhole Protection, Sitting

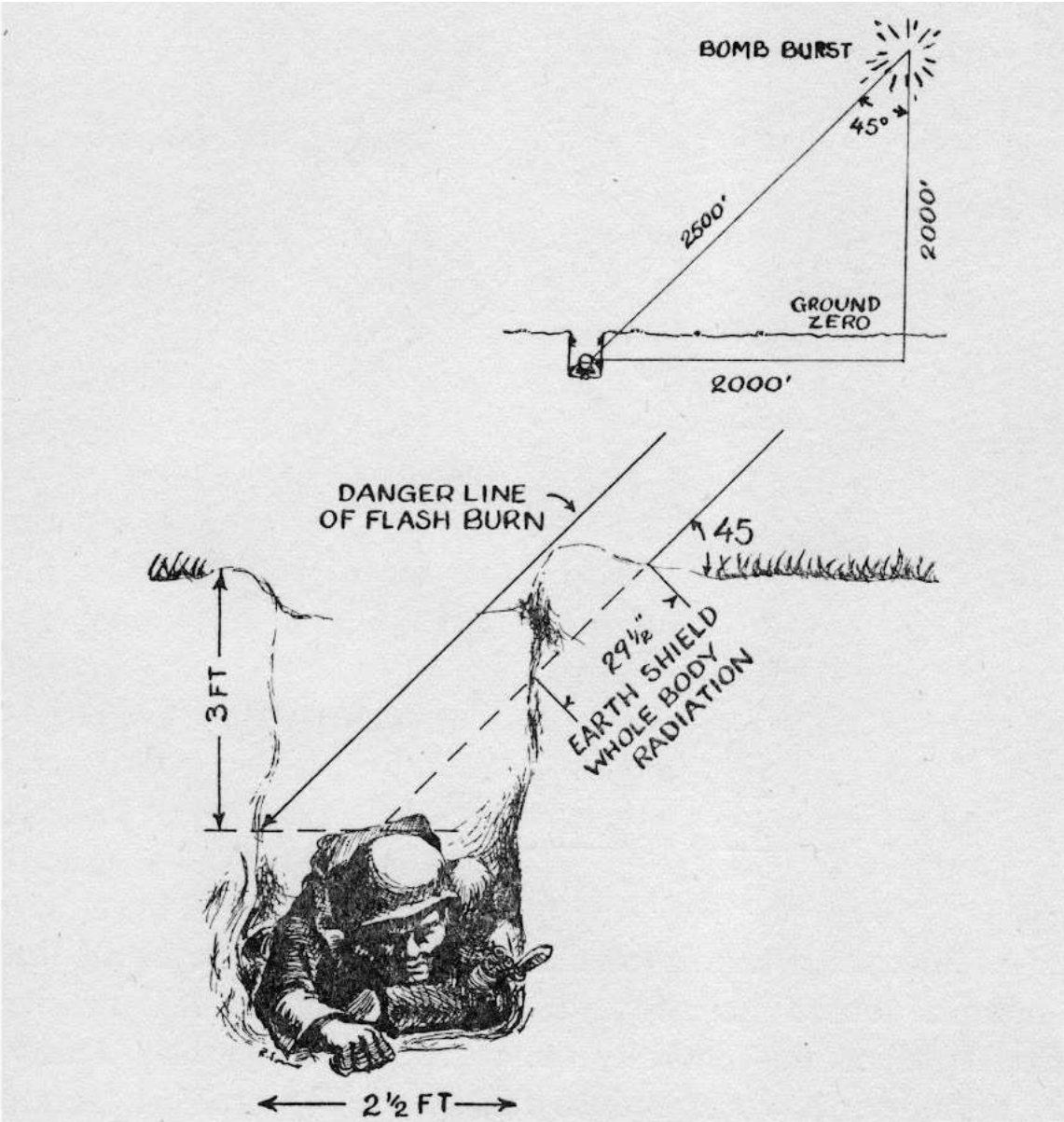


Plate 19. Foxhole Protection, Prone.

The individual pictured in plates 17, 18, and 19 is less than one half mile away.

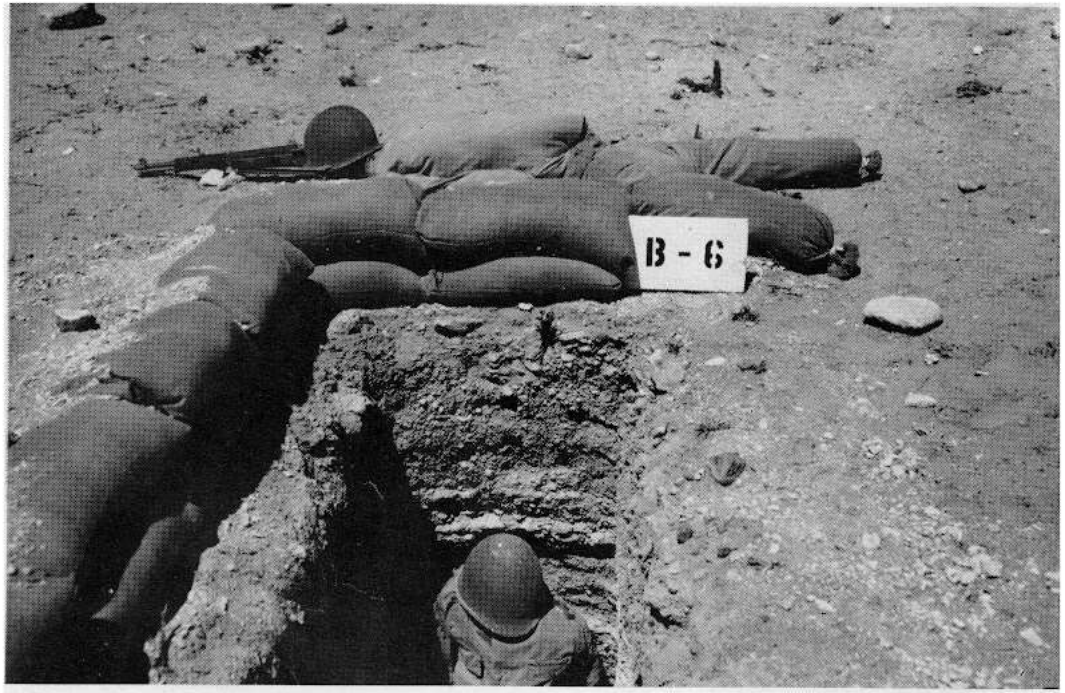
The same digging-in procedure will safeguard equipment,

Plate 18. Foxhole Protection, Siting.

From: Colonel G. C. Reinhardt and Lt Col W. R. Kintner, Atomic Weapons in Land Combat, Military Services Publishing, Harrisburg, 2nd ed. August 1954. The Foreword by Lt General Manton S. Eddy, US Army, states: "We tend to exaggerate the threat, while almost ignoring the potent defense included in our own atomic capabilities. Instead of their effectiveness against an aggressor's mass numbers, we dwell upon overstated radiation hazards."

Page 19: "... 10 hydrogen bombs, each of 20 megaton power [air burst, clean], delivered along the West bank of the Rhine in March 1945 would have "shattered, if not destroyed" the Allied armies on the threshold of victory."

Page 65: "Friendly troops crouched down in foxholes will unquestionabl be safe one mile from ground zero f the 20 kiloton or nominal bomb."



U. S. Army Photo.

PREPARATION FOR ATOMIC TEST.
Troop dummies about to undergo atomic bomb test, Camp Mercury, Nevada, 1952.



U. S. Ar

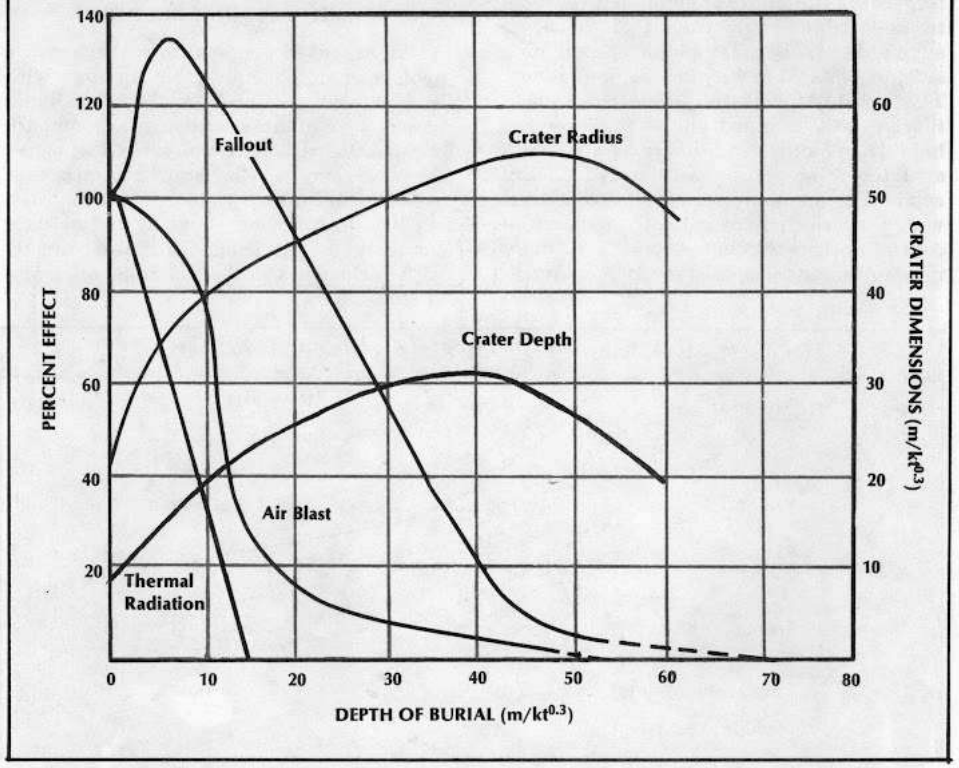
RESULTS OF ATOMIC TEST.
Troop dummies after atomic bomb test, Camp Mercury, Nevada, 1952.

subsurface detonation of a 0.05 KT ADM buried at a depth of 17 meters. This is a reduction of yield by a factor of 20 compared to surface detonation. It is a reduction by more than 1,000 compared to the other nuclear system described.

CONTROL OF UNDESIRABLE EFFECTS

One of the greatest advantages of using ADM is the ability to control nuclear effects. This capability is especially important in ADM employment since ADM are normally used near friendly troops and therefore can create a troop safety hazard. The advantages of control of undesirable effects are apparent in two ways. First, the use of extremely small yields for target destruction reduces undesirable nuclear effects significantly compared to other nuclear methods of destruction. Second, while burial can reduce or eliminate most undesirable nuclear effects, the effectiveness of the cratering action is increased. See figure on page 2-5.

CONTROL OF ADM EFFECTS



Note in the graph on page 2-11 that while air blast, nuclear radiation, and thermal radiation are greatly reduced with increased depth of burst, the primary effect of cratering is maximized. Thus, as a result of the proper selection of depth of burst, the nuclear effects required for target destruction can be optimized while many of the undesirable effects can be reduced. Reduced troop safety distances result, allowing the use of ADM in areas which would otherwise be prohibited to nuclear weapons use. See figure on page 2-13.

ACCURATE TARGET ACQUISITION AND PREPLANNING

ADM are intended for employment against materiel-type targets. Therefore, most targets are stationary or permanent, such as tunnels, highways, bridges, airfields, or supply depots. Because of this specific mission, most ADM targets can be preplanned. The best ADM yield and emplacement position can be determined, and an emplacement hole or demolition chamber can be constructed long before anticipated enemy action. This preplanning capability combined with the selection of a depth of burst to control nuclear effects results in a versatile range of options. The existence of preplanned emplacement holes or demolition chambers also allows rapid and effective ADM emplacement.

DELIVERY MEANS

Unlike other members of the nuclear weapons family, ADM are not limited to specific methods of delivery as are cannon or rocket artillery with limited ranges. ADM can be transported by any of several methods including vehicle, helicopter, and, in the case of the SADM, backpack. In short, ADM may be delivered to any area accessible to foot troops. This advantage of requiring no special delivery equipment adds flexibility to the planning and use of ADM.

ACCOMPLISHMENT OF MISSIONS BEYOND THE CAPABILITY OF HIGH EXPLOSIVES

ADM are used in situations where the achievement of comparable damage with high explosives is prohibited by time, manpower, and material requirements. A comparison of ADM with high explosives is shown in the table below. The logistical advantages of even the minimum-yield ADM over high explosives are obvious. Logistical support for conventional explosives increases directly with yield while for ADM it is relatively unchanged.

LOGISTICAL COMPARISON OF ADM AND HIGH EXPLOSIVES

	ADM	TNT
Yield	0.01 KT	20,000 pounds
Weight	100 pounds	25,000 pounds
Volume	0.5 cubic meters	15 cubic meters
Transportation	2 persons	4 5-ton dump trucks
Emplacement time*	0.5 man-hour	440 man-hours

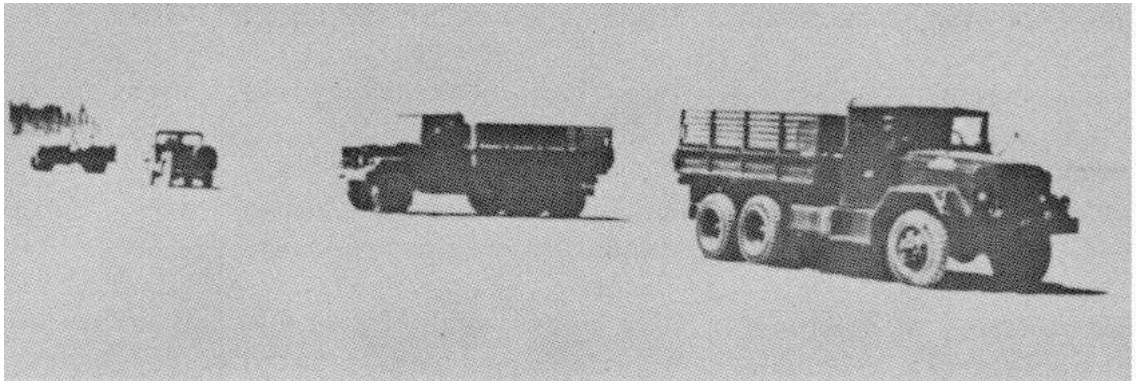
*Excludes security time

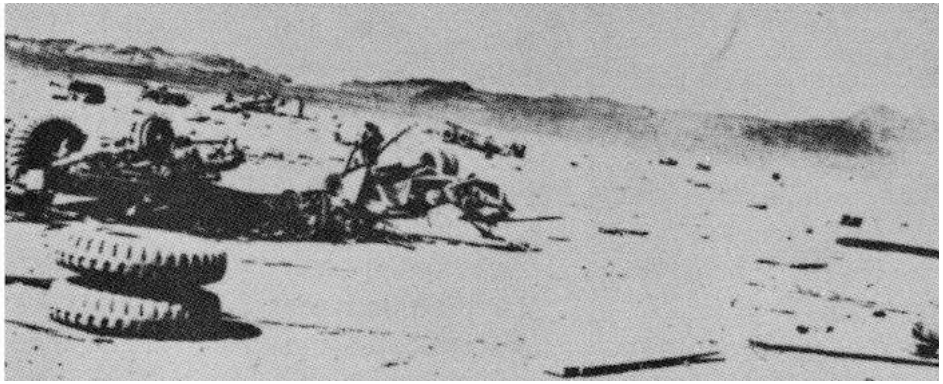
Table C-17 Radius of Fire Areas for Surface and SubSurface Bursts

(Distances in Meters)

Yield (KT)	DOB (Meters)	Dry Forest	Green Forest	50 Percent Relative Humidity: Wholesale Business Buildings	Retail Business Buildings	Poor Urban Homes	Medium Urban Homes
.01	0	12	75	40	35	45	40
	3	3	20	10	10	10	10
	5	0	0	0	0	0	0
	10	0	0	0	0	0	0
	15	0	0	0	0	0	0
.05	0	250	155	80	70	90	80
	3	135	80	45	40	50	40
	5	55	35	20	15	20	15
	10	0	0	0	0	0	0
	15	0	0	0	0	0	0
.10	0	345	210	110	100	120	105
	3	215	130	70	60	75	65
	5	125	75	40	35	45	40
	10	0	0	0	0	0	0
	15	0	0	0	0	0	0
.50	0	760	440	230	200	255	220
	3	575	335	175	155	195	165
	5	455	265	140	120	155	130

	10	155	90	45	40	50	45
	15	0	0	0	0	0	0
1.00	0	1065	630	315	280	350	300
	5	720	425	215	190	240	205
	10	375	220	110	100	125	105
	15	30	15	10	10	10	10
	20	0	0	0	0	0	0
	25	0	0	0	0	0	0
	30	0	0	0	0	0	0
5.00	0	2330	1490	770	675	860	735
	5	1860	1190	615	540	685	585
	10	1390	890	460	400	510	435
	15	920	590	305	265	340	290
	20	450	285	150	130	165	140
	25	0	0	0	0	0	0
	30	0	0	0	0	0	0





Note that the secret six volumes on the nuclear strike on Hiroshima and Nagasaki (which state the opposite to the USSBS's unclassified report and Glasstone's books) referred to by General Gavin - US Strategic Bombing Survey reports #92 and #93 - prove modern concrete buildings remained intact near ground zero, the *vast majority of Hiroshima fires were delayed and due to overturned charcoal breakfast cooking braziers in wood frame and bamboo homes not obsolete in city centres, and only black color blackout curtains showed sustained ignition at ground zero, etc.* In other words, the strategic use of nuclear weapons have always been a COMPLETE lying scam based on deliberately-misleading Glasstone style unclassified 1930s air war type propaganda, enforced by secrecy! As in the 1930s, both "military" strategic bombing propagandarists and Hitler-backing "peaceniks" combined to assert knockout blow and "end of the world" bombing obfuscations that led to appeasement and world war, not to peaceful, credible deterrence of the invasions that set off world wars. The basic problem here is that strategic bombing advocates used secrecy on the truth about Hiroshima to fake *The Effects of Nuclear Weapons* to suit their agenda, just as such people did with tragic results for appeasement and World War II in the 1920s and 1930s. We have to get the truth out now, against the combined "arms control and disrmament" mass media supporting Russian propaganda fronts to, as Joseph Friedlander kindly put it in a recent email to me, "get them to not use their most effective weapons"! Sam Cohen after 1977 Glasstone and Dolan's *Effects of Nuclear Weapons* openly published (in books) a letter he wrote to US DOD complaining that the neutron bomb wasn't in Glasstone's book *Effects* and the public was being allowed to remain supplied only with enemy propaganda from fake "peaceniks" like CND. Why? Dolan had the neutron bomb (including the calculation method for blast wave and thermal modification by high D+T neutron yield, ignored by all "peacenik" propaganda fronts) in his secret DNA-EM-1 Capabilities, published (for the reading pleasure of those with security clearance only) back in 1972! No excuse for not having it in 1977 Glasstone and Dolan, therefore! As "Dr Strangelove" would put it, the whole point of a deterrent is that the other side KNOWS ABOUT IT. You don't keep a deterrent secret, unless you're playing some kind of three-card trick. Why is there any nuclear weapons secrecy, anyway? Plutonium isn't for sale.

SECRET
FORMERLY RESTRICTED DATA
Atomic Energy Act 1954

STUDY S-266

TACTICAL NUCLEAR WEAPONS IN SOUTHEAST ASIA (U)

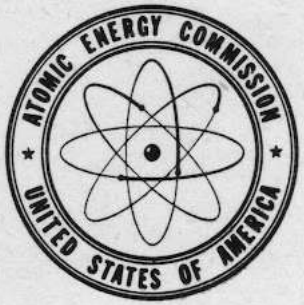
F J Dyson
R Gomer
S Weinberg
S C Wright

The main weakness of tree blowdown as a method of interdiction is that a tree can only be blown down once. Once the trees are down and the enemy has cut a new trail through the fallen trunks, further TNW strikes will be relatively ineffective. In fact, the fallen trunks will give excellent cover against the blast and heat effects of subsequent strikes. Therefore, the main question in assessing the usefulness of tree blowdown is how long will it take the enemy to cut a trail through a blown down forest. If the time taken to cut a trail is short compared to the duration of the war, the blowdown will not have a decisive effect on the outcome.

A careful study would be needed to determine the trail-cutting time, which would depend strongly on details of logistics and topography as well as on the size and taxonomy of the trees. Presumably, the job could be done with a liberal use of HE much more rapidly than with hand saws. If caches of food and HE were prepositioned along the trails, the work of

The Effects of

Nuclear Weapons



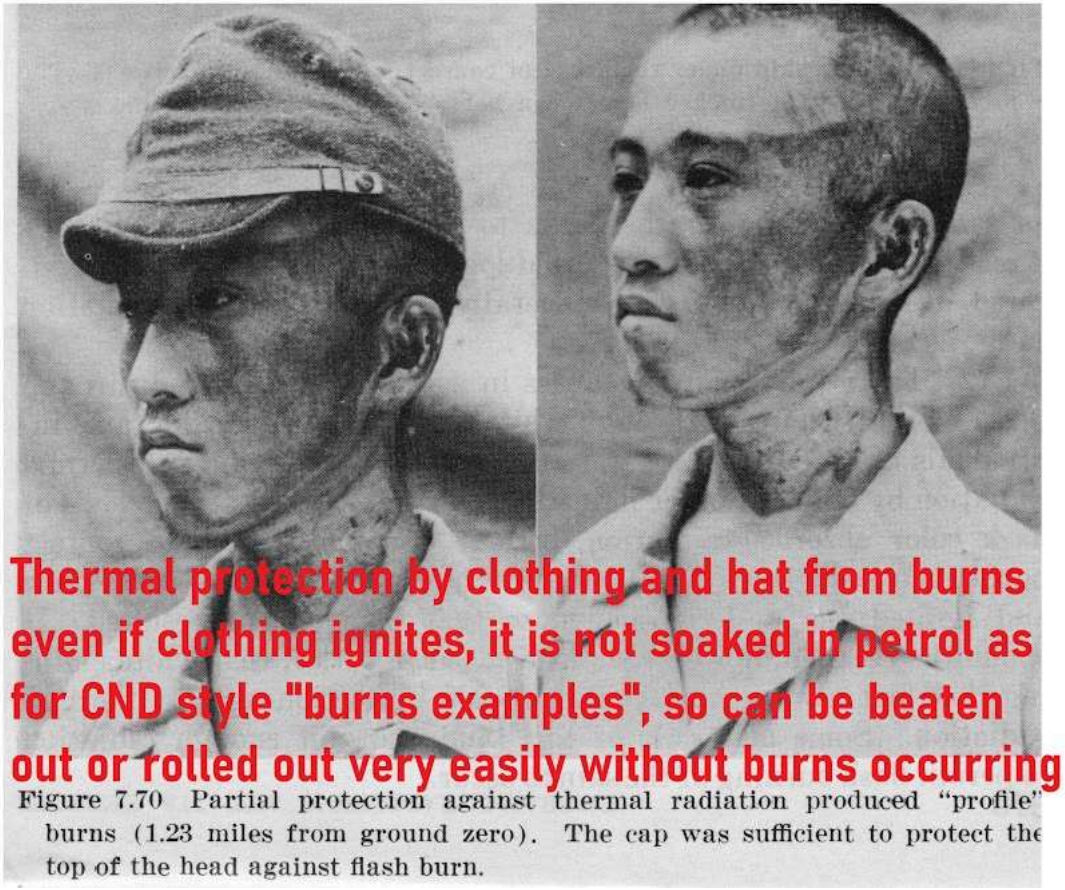
SAMUEL GLASSTONE
Editor

Foreword

This handbook, prepared by the Armed Forces Sp
cial Weapons Project of the Department of Defen
in coordination with other cognizant governme
agencies and published by the United States Atom
Energy Commission, is a comprehensive summa
of current knowledge on the effects of nuclear wea
ons. The effects information contained herein
calculated for yields up to 20 megatons and the sc
ing laws for hypothetically extending the calcu
tions beyond this limit are given. The figure of
megatons however is not to be taken as an indicati
of capabilities or developments.

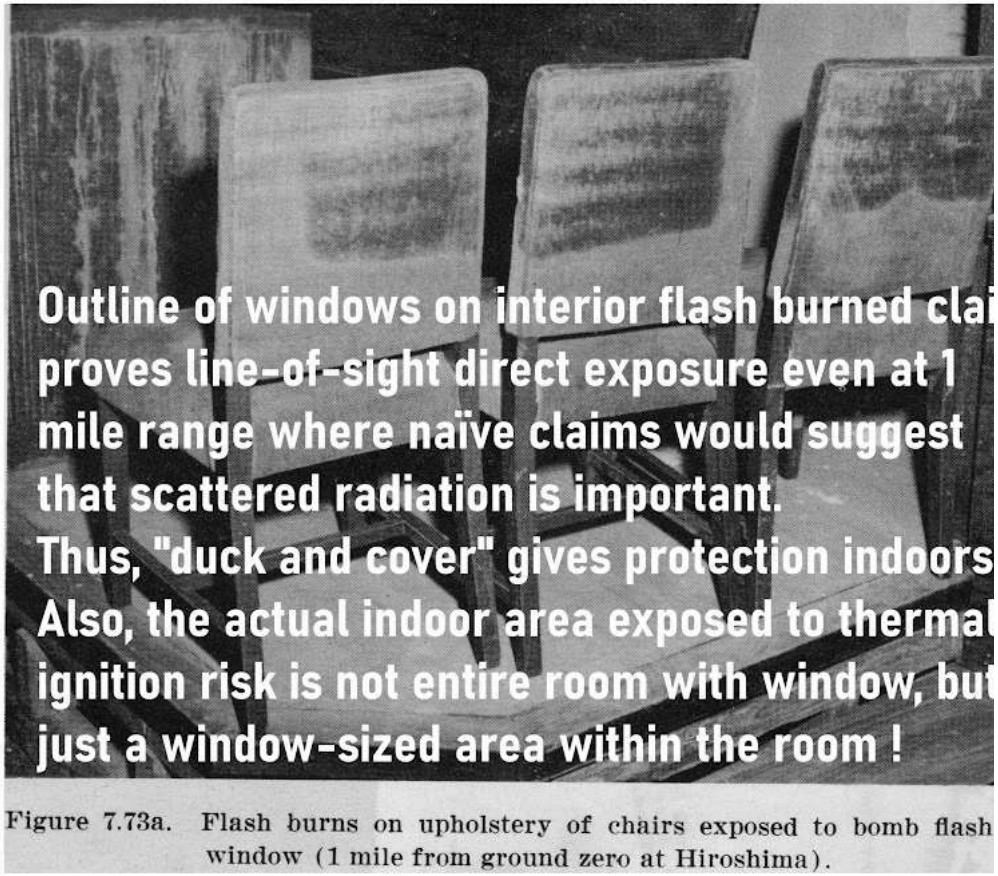
CHARLES E. WILSON
Secretary of Defense

LEWIS L. STRAUSS
Chairman
Atomic Energy Commissio



Thermal protection by clothing and hat from burns even if clothing ignites, it is not soaked in petrol as for CND style "burns examples", so can be beaten out or rolled out very easily without burns occurring

Figure 7.70 Partial protection against thermal radiation produced "profile" burns (1.23 miles from ground zero). The cap was sufficient to protect the top of the head against flash burn.



Outline of windows on interior flash burned clai proves line-of-sight direct exposure even at 1 mile range where naïve claims would suggest that scattered radiation is important.
Thus, "duck and cover" gives protection indoors
Also, the actual indoor area exposed to thermal ignition risk is not entire room with window, but just a window-sized area within the room !

Figure 7.73a. Flash burns on upholstery of chairs exposed to bomb flash window (1 mile from ground zero at Hiroshima).

Table C-1 Air Blast Damage Radii Buildings and Structures

Surface Burst Only*
(Distances in Meters)

MOD - moderate SEV - severe

Target Description	Degree of Damage	Yield (KT) .01	Yield (KT) .05	Yield (KT) .1	Yield (KT) .5	Yield (KT) 1	Yield (KT) 5
Multistory wall-bearing building, brick apartment house type, up to three stories.	MOD	69	140	207	398	557	1284
	SEV	54	108	160	307	429	988
Wood frame building, house type, one or two stories.	MOD	92	193	286	555	723	1643
	SEV	62	129	191	371	517	1238
Light steel frame industrial building. Single story, up to 5-ton crane capacity.	MOD	45	91	127	263	339	859
	SEV	21	42	59	133	200	553
Multistory steel frame office type building, 3 to 10 stories, earthquake resistant construction.	MOD	27	51	72	133	185	436
	SEV	18	34	48	90	124	291
Multistory steel frame office type building, 3 to 10 stories, nonearthquake resistant construction.	MOD	33	67	93	174	241	576
	SEV	21	42	59	110	151	361
Multistory reinforced concrete frame office type building, 3 to 10 stories, earthquake resistant.	MOD	28	56	78	144	194	466
	SEV	20	40	56	103	139	334
Multistory reinforced concrete, frame office type building, 3 to 10 stories, nonearthquake resistant.	MOD	34	65	91	168	231	595
	SEV	23	44	61	113	154	417

Table C-3 Air Blast Damage Radii for Field Fortifications

Surface Burst Only*
(Distances in Meters)

MOD - moderate SEV - severe

Target Description	Degree of Damage	Yield (KT) .01	Yield (KT) .05	Yield (KT) .1	Yield (KT) .5	Yield (KT) 1	Yield (KT) 5
Command post and personnel	MOD	18	36	49	93	122	286

shelter, modular sections 6 feet by 8 feet with top 3 feet to 5 feet below ground surface, earth covered, and covered trench entrance.	SEV	17	34	46	88	115	269
	(SIMILAR TO CIVIL DEFENSE IMPROVISED EMERGENCY NUCLEAR WAR SHELTERS)						

Table C-4 Air Blast Damage Radii for Military Field Equipment

Surface Burst Only* (Distances in Meters) MOD - moderate SEV - severe

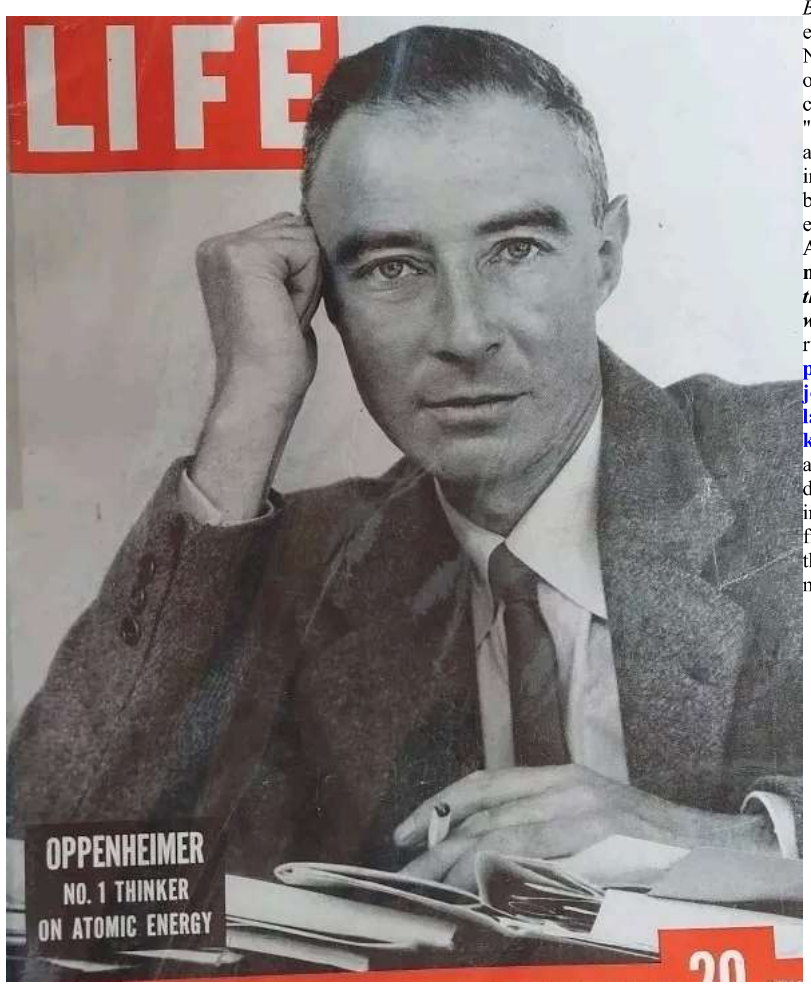
Target Description	Degree of Damage	Yield (KT) .01	Yield (KT) .05	Yield (KT) .1	Yield (KT) .5	Yield (KT) 1	Yield (KT) 5
Tracked vehicles	MOD	17	38	54	115	157	411
	SEV	11	24	34	72	98	255
Artillery	MOD	18	39	55	117	160	419
	SEV	16	34	48	102	139	363
Wheeled military vehicles	MOD	23	52	74	157	215	563
	SEV	16	35	50	106	145	379
Supply dumps	SEV	11	23	33	68	93	243

Project Vista, the secret 1951 Korean War study of tactical nuclear weapons to halt or deter invasions by J. R. Oppenheimer and others (which ultimately led to Samuel Cohen's "neutron bomb" deterrent, the hard-won W79 disarmed by loons in the 1990s to encourage invasions and wars), led to the August 1953 **book *Atomic Weapons in Land Combat* by Colonel G. C. Reinhardt and Lieutenant Colonel W. R. Kintner of the US Army. We will now quote the key findings in the second edition (August 1954) of this book**. On page 22, they explain that US Atomic Energy Commission Chairman Gordon Dean stated in October 1951: "There is now a new kind of atomic warfare more promising as a means of halting aggressors without risk of destroying large parts of the world in the process." On page 107, they argue that base surge radiation from underwater bursts such as the "spectacular" 25 July 1946 Baker nuclear test under Bikini Lagoon "has produced an exaggerated fear. The truth is that no beaches suitable for amphibious operations are close enough to deep water for a nominal atomic bomb to cause a base surge." In plate 20 on page 151, they show that it took a peak overpressure of 24 psi to cause concrete building with 10" thick walls and 6" thick floors to collapse in Hiroshima, showing resistance of modern city buildings to collateral damage. On page 164 they point out that mines in a minefield with a firing pressure of 400 lbs and a solid pressure plate 5" in diameter require blast overpressures of over 20 psi to detonate: "Within that circle, tanks (yours or the enemy's) may range with comparative safety." On page 176 they point out that the Presidential "Authority to commit atomic weapons on the battlefield confers upon each general an almost magical influence over the conflict, equivalent to throwing in whole new divisions in a fraction of the time such a move would have previously entailed." (Although this can, of course, be vandalised if the President is surrounded by indecisive groupthink defeatists, who allow the enemy time to "dig in" and build hard improvised shelters, instead of stopping invasion columns quickly, *when they are crossing borders and vulnerable to nuclear effects*.) On page 204 they point out:

"Records of early engagements in 1914 describe the carnage in model 1870 formations on battlefields beginning to be dominated by machine gun fire [before trench warfare]. Armies were forced into trench warfare, to relearn after 50 years the lessons of the American Civil War [where 30 miles of trenches were constructed during the 292 days Siege of Petersburg, 1864-5, with machine gun emplacements, shelters and 70,000 casualties]. Almost four years of world conflict passed before World War I armies recovered the lost art of infiltration though it had been thoroughly registered in the history of Braddock's defeat and decades of Colonial-Indian fighting."

On page 213, Reinhardt and Kintner argue: "American emphasis on atomic weapons is a correct application of the principle of economy of force. ... The widespread campaign to stigmatize the use of atomic weapons as morally wrong cannot be ignored in a conflict where psychological and ideological overtones are proving almost as vital as military encounter. Ruthless aggression is inherently more reprehensible than the means to stop it. Nevertheless, emotional appeals to outlaw atomic weapons presents a problem to United States politico-military planners wich should not be underestimated." They argue on pages 219-20 that once Chinese forces had "dug in along the Korean front" they were virtually immune to conventional (or nuclear) attack: "We have not yet digested the unpalatable fact that those armies were able to operate against us for several years while our Air Force commanded the skies above the battlefield." They correctly conclude on pages 223-5 that deterrence must operate to prevent/stop against invasions *while they are occurring,* not after the invaders have "dug in" and are virtually immune to attack:

"Tactical atomic task forces can be hurled against local aggression anywhere in the world ... Striking before the invading armies have time to dig in and consolidate, they can quickly render them ineffective. But what, you ask, if the true sponsors of aggression then decide to come to the rescue of their trojan column? It is for this contingincy that our atomic retaliation capability should be poised. When a major power openly associates itself with aggression, America's atomic reprisal, swift and overwhelming [delivered by cruise missiles from ships or aircraft, or Trident MIRV tactical warheads from submarines, or even by ICBMs or drones], would be understood and approved throughout the world, whether it be confined to military targets or in reprisal for atomic attacks on the cities of the USA or our Allies [thus, as Herman Kahn and Samuel Cohen argued later, tactical nuclear deterrence needs to be backed up by strategic nuclear deterrence to keep escalation at bay, just as ABM and civil defense are needed against "accidental" enemy limited nuclear demonstration attacks on cities, to reduce escalation risks and casualties]. ... In a competition between atomic technologies the free world should suffer neither in numbers nor in scientific improvements. ... none save romanticists have ever discovered a battlefield lacking in horror, whether its weapons have been tomahawks or machine guns. ... If the forces of aggression dream of easy victory, won through ruthless acceptance of losses by its waves of troops, they would do well to re-evaluate their hopes in light of the development of atomic weapons and what those weapons represent in battlefield potential. Surely the free peoples, who developed them solely to protect their freedom, will - if forced to - use them with a skill and determination that cannot be overcome."



BELOW: Secret "For Official Use" and individually numbered Russian nuclear defense manual (169 pages long, T. F. Myasnikova, technical editor) entitled "КРАТКИЙ СПРАВОЧНИК ПО БОЕВЫМ СВОЙСТВАН ЯДЕРНОГО ОРУЖИЯ" [= "A Brief Guide to the Combat Properties of Nuclear Weapons"] states: "Ядерное оружие обладает значительно большей разрушительной силой по сравнению с обычными видами оружия, но существуют простые и надежные методы защиты от него. ... В этом руководстве представлен краткий обзор ядерного оружия, средств и методов защиты от ядерной угрозы, а также инструкции о том, как действовать в случае применения ядерного оружия." [= "Nuclear weapons have significantly greater destructive power than conventional weapons, but there are simple and reliable methods of protecting against them. ... This guide provides a brief overview of nuclear weapons, the means and methods of defending against a nuclear threat, and instructions on what to do in the event of a nuclear weapon being used."] The manual contains data tables on damage to Russian military equipment based on Russian nuclear weapons tests, as shown BELOW (this manual is the 2nd edition, dated 1969, but since Russian atmospheric nuclear tests ended in 1962, the data is still valid today). The Russian peak overpressure unit is the kg/cm^2 which equal to 1 atmosphere or 14.7 psi in classic American units or 101 kPa in Western SI units (1 kg/cm^2 = 10 tons/m^2 = 1 atmosphere = 14.7 psi = 101 kPa). **Page 104 states that for 1 kiloton-1 megaton yields, Russian "*Basement shelters for the population (type III shelters)" require 2-4 kg/cm^2 or 30-60 psi for destruction (making them harder than the concrete buildings surviving near ground zero in Hiroshima), while hydroelectric dams and underground utility pipes for water, sewage and gas supply require 10-15 kg/cm^2 or 150-225 psi for destruction*.** The hardest targets listed (on page 100) are the concrete runways at airports, which require in excess of 20 kg/cm^2 or 300 psi for destruction by cracking and spalling (ground shock effects). **Note particularly Table 41 at pages 92-93, where severe damage (destruction) radii are given for Russian tactical nuclear missiles, cruise missiles, jet fighters, jet bombers, nuclear artillery guns, anti-aircraft guns, mortars, light and heavy machine guns, light and heavy grenade launchers, for air and surface bursts and for 13 yield classes from 1 kiloton to 1 megaton (including the calculated damage pressures in kg/cm^2, separately shown for surface and air bursts).** Also, note that it compiles Russian data on measured EMP from nuclear tests in Tables 23 and 24 on page 71, showing the induced voltages as a function of weapon yield, type of conductor (aerial or underground buried power cable), and distance from ground zero. This proves Russian capabilities to use EMP effects from nuclear weapons. For example, Table 23 shows that 10 kV was induced in a 10m aerial at 3.3 km from a 1 megaton low altitude detonation. Note also that Russia found (Table 38) that forest area fires (not isolated fires) cannot occur after surface bursts in coniferous forests even at megaton yields, because of the low angle of elevation of the fireball and because the blast wave following the heat flash blows out most fires, although fire areas can occur at certain distances from ground zero in deciduous and mixed forests for higher-yield surface bursts. This detailed analysis proves Russian preparation for tactical nuclear war is true.

Для служебного пользования
Экз. № 14066

КРАТКИЙ СПРАВОЧНИК ПО БОЕВЫМ СВОЙСТВАМ ЯДЕРНОГО ОРУЖИЯ

Инспектория № 101

Основными элементами **ядерных зарядов деления** являются: делящееся вещество (собственно ядерный заряд), отражатель нейтронов, заряд обычного взрывчатого вещества и искусственный источник нейтронов.

Формирование надкритической массы делящегося вещества в ядерных зарядах деления может осуществляться различными способами.

В зарядах так называемого *имплозивного типа* формирование надкритической массы осуществляется повышением плотности делящегося вещества путем его всестороннего обжатия давлением взрыва обычного взрывчатого вещества. Делящееся вещество в этих зарядах имеет массу меньше критической и располагается внутри заряда из обычного взрывчатого вещества. При взрыве обычного взрывчатого вещества делящееся вещество подвергается сильному обжатию, плотность его увеличивается, масса становится надкритической (рис. 3)

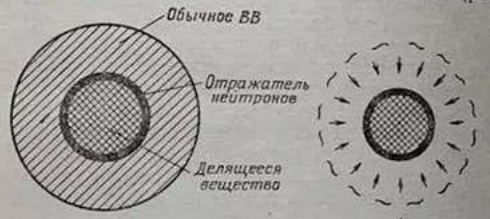


Рис. 3. Ядерный заряд деления имплозивного типа:
а — до взрыва (плотность делящегося вещества нормальная, масса его меньше критической); *б* — в момент взрыва (плотность делящегося вещества выше нормальной, масса его больше критической)

и в нем развивается реакция деления. Чем больше степень обжатия, тем выше надкритичность ядерного горючего и соответственно больше мощность взрыва. При увеличении плотности делящегося вещества, например, в 2 раза критическая масса его уменьшается в 4 раза.

Возможны и другие схемы устройства заряда. В частности, в зарядах так называемого *пушечного типа* ядерное горючее разделено на две или несколько частей подкритических размеров, чтобы в каждой из

Radius for failure of military equipment, weapons and structures from nuclear explosions, km

Таблица 41

Радиусы зон выхода из строя военной техники, вооружения и инженерных сооружений при ядерных взрывах, *км*

Name of equipment, weapons Наименование техники, вооружения и сооружений or structures	Вид взрыва (Н — наземный, В — воздушный)	Severe damage Давление, выводящее объект из строя, *кг/см²* pressure, kg/cm2	Мощность взрыва, тыс. *т* Nuclear yield, kilotons									
			1	2	3	5	10	20	30	50	100	200	300	500	1000
H= surface burst B = air burst			Missile and aviation equipment Ракетная и авиационная техника												
Operational-tactical ballistic missiles Баллистические ракеты оперативно-тактического назначения	Н	0,25—0,3	0,6	0,75	0,86	1	1,3	1,6	1,85	2,2	2,8	3,5	4	4,75	6
	В	0,2—0,25	0,68	0,86	0,98	1,15	1,45	1,85	2,1	2,5	3,15	4	4,6	5,4	6,8
Cruise missiles and jet fighters Крылатые ракеты оперативно-тактического назначения и реактивные истребители	Н	0,3—0,35	0,5	0,63	0,72	0,85	1,1	1,35	1,55	1,85	2,3	2,9	3,35	4	5
	В	0,25—0,35	0,54	0,68	0,78	0,92	1,15	1,5	1,7	2	2,5	3,15	3,6	4,3	5,4
Реактивные бомбардировщики и реактивные транспортные самолеты Jet bombers and transport aircraft	Н	0,13—0,15	0,88	1,1	1,25	1,5	1,9	2,4	2,75	3,25	4,1	5,15	5,9	7	8,8
	В	0,13—0,15	1	1,25	1,45	1,7	2,15	2,7	3,1	3,65	4,6	5,8	6,65	7,85	10
Поршневые транспортные самолеты, самолеты связи и вертолеты Piston powered aircraft	Н	0,07—0,08	1,4	1,75	2	2,4	3	3,8	4,35	5,15	6,5	8,2	9,4	11	14
	В	0,07—0,08	1,6	2	2,3	2,75	3,45	4,35	5	5,9	7,4	9,35	10,5	12,5	16
Artillery, small arms, grenade launchers Артиллерийское вооружение, стрелковое оружие и гранатометы															
Ground and nuclear artillery guns Орудия наземной и атомной артиллерии	Н	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,15	1,45	1,7	2	2,5
	В	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4	1,75	2	2,4	3
Anti-aircraft artillery guns Орудия зенитной артиллерии	Н	0,6—0,9	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4	1,75	2	2,4	3
	В	0,4—0,6	0,36	0,45	0,52	0,61	0,77	0,97	1,1	1,3	1,65	2,1	2,4	2,85	3,6
Mortars Минометы	Н	1—2	0,23	0,29	0,33	0,39	0,49	0,62	0,7	0,84	1,05	1,35	1,5	1,8	2,3
	В	0,7—0,9	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,15	1,45	1,7	2	2,5
Rifles, carbines, autos, light machine guns & grenade launchers Винтовки, карабины, автоматы, ручные пулеметы и ручные гранатометы	Н	1—1,2	0,26	0,33	0,38	0,45	0,57	0,71	0,82	0,97	1,2	1,55	1,75	2,1	2,6
	В	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4	1,75	2	2,4	3
Heavy-duty machine guns Станковые и крупнокалиберные пехотные пулеметы	Н	0,5—0,7	0,35	0,44	0,5	0,6	0,75	0,95	1,1	1,3	1,65	2,05	2,35	2,8	3,5
	В	0,4—0,6	0,36	0,45	0,52	0,61	0,77	0,97	1,1	1,3	1,65	2,1	2,4	2,85	3,6
	Н	0,45—0,55	0,4	0,5	0,57	0,68	0,85	1,1	1,25	1,45	1,85	2,3	2,65	3,15	4
	В				0,65	0,77	0,97	1,2	1,4	1,6	2,1	2,6	3	3,6	4,5

| | | |

Продолжение

Name of equipment, weapons or Наименование техники, вооружения и сооружений structures	Вид взрыва (Н — наземный, В — воздушный)	Severe damage pressure, kg/cm2 Давление, выводящее объект из строя, кг/см²	Мощность взрыва, тыс. т Nuclear yield, kilotons 1	2	3	5	10	20	30	50	100	200	300	500	1000
H = surface burst B = air burst		Fortifications, bridges, landing strips for aircraft, wire and minefields, take-off airfields													
Фортификационные сооружения, мосты, посадочные полосы					проволочные и минные заграждения и взлетно-аэродромов										
Trenches (open crevices) - no cover Траншеи (открытые щели) полного профиля без одежды крутостей в средних грунтах	Н	0,4—0,8	0,34	0,43	0,49	0,58	0,73	0,92	1,05	1,25	1,6	2	2,3	2,7	3,4
	В	0,4—0,8	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4	1,75	2	2,4	3
Trenches (open crevices) - clothed Траншеи (открытые щели) полного профиля с одеждой крутостей в средних грунтах	Н	1—1,5	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,15	1,45	1,7	2	2,5
	В	1—1,5	0,19	0,24	0,27	0,32	0,4	0,5	0,58	0,68	0,86	1,1	1,25	1,5	1,9
Перекрытые щели Blocked gaps	Н	0,5—1	0,31	0,39	0,44	0,53	0,66	0,84	0,96	1,15	1,45	1,8	2,05	2,45	3,1
	В	0,5—1	0,26	0,33	0,38	0,45	0,57	0,71	0,82	0,97	1,2	1,55	1,75	2,1	2,6
Блиндажи Dugouts	Н	1—2	0,23	0,29	0,33	0,39	0,49	0,62	0,7	0,84	1,05	1,35	1,5	1,8	2,3
	В	1—2	0,17	0,21	0,24	0,28	0,36	0,45	0,52	0,61	0,77	0,97	1,1	1,3	1,7
Убежища легкого типа Light duty shelters	Н	2—3	0,18	0,23	0,26	0,31	0,39	0,49	0,56	0,66	0,83	1,05	1,2	1,45	1,8
	В	2—3	0,13	0,16	0,18	0,22	0,27	0,35	0,4	0,47	0,59	0,74	0,85	1	1,3
Убежища тяжелого типа Heavy duty shelters	Н	5—10	0,11	0,14	0,16	0,2	0,25	0,31	0,35	0,42	0,53	0,67	0,76	0,9	1,1
	В	5—10	0,08	0,1	0,11	0,13	0,17	0,21	0,24	0,29	0,36	0,46	0,52	0,61	0,8
Дерево-земляные огневые и наблюдательные сооружения Observation structures (wood & earth)	Н	1—1,5	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,15	1,45	1,7	2	2,5
	В	1—1,5	0,19	0,24	0,27	0,32	0,4	0,5	0,58	0,68	0,86	1,1	1,25	1,5	1,9
Долговременные сооружения Long term facilities	Н	10—20	0,09	0,11	0,13	0,15	0,18	0,24	0,27	0,32	0,4	0,51	0,58	0,69	0,9
	В	10—20	0,06	0,08	0,09	0,1	0,12	0,16	0,19	0,22	0,26	0,35	0,4	0,48	0,6
Наплавные мосты из табельных парков Floating bridges	Н	0,8—1,2	0,27	0,35	0,4	0,47	0,59	0,75	0,85	1	1,25	1,6	1,85	2,2	2,7
	В	0,35—0,4	0,45	0,57	0,65	0,77	0,97	1,2	1,4	1,6	2,1	2,6	3	3,6	4,5
Низководные деревянные мосты Low water wooden sea walls	Н	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,15	1,45	1,7	2	2,5
	В	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4	1,75	2	2,4	3

Металлические мосты с пролетом длиной 30—45 *м* Metal bridges of 30-45m span	Н В	1—2 0,6—0,7	0,23 0,3	0,29 0,38	0,33 0,43	0,39 0,51	0,49 0,65	0,62 0,81	0,7 0,93	0,84 1,1	1,05 1,4	1,35 1,75	1,5 2	1,8 2,4	2,3 3

Таблица 38

Table 38

Radii (km) for continuous fire zone in forests in dry weather with average visibility, no snow

Ориентировочные радиусы, *км*, зон возникновения в лесу сплошных низовых пожаров при очень слабой дымке в сухую погоду при отсутствии снежного покрова

Породный состав леса / Type of woods	Вид взрыва / H = surface burst, B = air burst	Мощность взрыва, тыс. *т* / Nuclear yield, kilotons												
		1	2	3	5	10	20	30	50	100	200	300	500	1000
Хвойный / Coniferous	H	—	—	—	—	—	—	—	—	—	—	—	—	—
	B	—	—	—	—	—	—	—	1,8	2,4	3	3,35	4,1	5,2
Смешанный / Mixed	H	—	—	—	—	—	—	—	—	—	2,4	2,8	3,4	4,4
	B	0,55	0,7	0,8	1	1,3	1,7	2	2,4	3,2	4	4,7	5,7	7,2
Лиственный / Deciduous	H	—	0,5	0,6	0,7	1	1,3	1,5	1,8	2,3	3	3,5	4,2	5,4
	B	0,7	0,8	1	1,15	1,65	1,95	2,25	2,7	3,8	4,45	5,1	6,1	8,7

Примечание. Прочерки означают, что при взрывах данной мощности сплошные низовые пожары не будут наблюдаться вследствие полного уничтожения леса ударной волной в зоне действия светового излучения.

Dashes indicate that blast wave extinguished fires in this area.

Personnel casualty radii (km)

Таблица 3

Средние радиусы зон выхода из строя личного состава при взрывах в районе со средними горами при чисто воздухе, *км*

Personnel location Условия расположения личного состава	Вид взрыва H = surface burst B = air burst	Nuclear yield, kilotons Мощность взрыва, тыс. *т*												
		1	2	3	5	10	20	30	50	100	200	300	500	100
Outside Вне укрытий, в автомобилях и бронетранспортерах открытого типа open vehicles	H	0,86	0,98	1,05	1,2	1,4	1,6	1,8	2,1	2,6	3,5	4,1	5	6,
	B	0,87	1,05	1,2	1,4	1,7	2,1	2,3	2,7	3,4	4,8	6	7,4	9,
В открытых фортификационных сооружениях Open fortifications	H	0,7	0,78	0,83	0,88	1	1,15	1,25	1,4	1,7	2,2	2,6	3,2	4,
	B	0,7	0,85	0,95	1,1	1,4	1,6	1,8	2	2,4	3,2	3,7	4,6	6
В бронетранспортерах закрытого типа In closed APCs	H	0,86	0,96	1	1,05	1,2	1,35	1,45	1,6	1,8	2	2,2	2,45	2,
	B	0,87	0,98	1,05	1,15	1,3	1,45	1,55	1,7	1,9	2,1	2,3	2,6	3
В танках In tanks	H	0,67	0,75	0,8	0,85	0,95	1	1,05	1,1	1,2	1,3	1,4	1,6	2
	B	0,67	0,72	0,75	0,8	0,85	0,87	0,88	0,9	0,95	1,05	1,1	1,3	1,
В блиндажах In dugouts	H	0,18	0,23	0,26	0,32	0,4	0,53	0,62	0,75	1	1,3	1,5	1,8	2
	B	0,11	0,14	0,17	0,2	0,25	0,32	0,37	0,43	0,55	0,7	0,8	0,95	1
В убежищах легкого типа Laying down in shelters	H	0,14	0,17	0,2	0,23	0,3	0,4	0,46	0,55	0,75	1	1,2	1,4	1
	B	0,08	0,1	0,12	0,14	0,18	0,23	0,26	0,31	0,4	0,5	0,6	0,7	0

Продолжение

Наименование техники, вооружения и сооружений Name of equipment, weapons and structures	Вид взрыва (Н — наземный, В — воздушный)	Давление, выводящее объект из строя, *кг/см²* Destruction pressure kg/cm2	Мощность взрыва, тыс. *т* Nuclear yield, kilotons									
			1	2	3	5	10	20	30	50	100	200	300	500	1000
H = surface burst B = air burst															
Бронетанковая и автомобильная техника **Military vehicles**															
Medium and heavy tanks Тяжелые и средние танки	H	2—4	0,17	0,21	0,24	0,28	0,36	0,45	0,52	0,61	0,77	0,97	1,1	1,3	1,7
	B	0,9—1,1	0,21	0,27	0,31	0,37	0,46	0,58	0,67	0,79	1	1,25	1,45	1,7	2,1
Light tanks or SPGs Легкие танки и самоходные артиллерийские установки	H	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,15	1,45	1,7	2	2,5
	B	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4	1,75	2	2,4	3
Бронетранспортеры APCs	H	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,15	1,45	1,7	2	2,5
	B	0,4—0,55	0,38	0,48	0,55	0,65	0,82	1,05	1,2	1,4	1,75	2,25	2,55	3	3,8
Грузовые автомобили и автоцистерны Trucks / tank cars	H	0,4—0,5	0,42	0,53	0,61	0,72	0,9	1,15	1,3	1,55	1,95	2,45	2,8	3,35	4,2
	B	0,25—0,35	0,54	0,68	0,78	0,92	1,15	1,5	1,7	2	2,5	3,15	3,6	4,3	5,4
Автобусы и специальные автомобили с кузовами автобусного типа Buses etc	H	0,2—0,3	0,6	0,75	0,86	1	1,3	1,6	1,85	2,2	2,8	3,5	4	4,75	6
	B	0,2—0,3	0,63	0,79	0,91	1,1	1,35	1,7	1,95	2,3	2,9	3,7	4,2	5	6,3
Гусеничные артиллерийские тягачи Tracked artillery	H	0,45—0,55	0,4	0,5	0,57	0,68	0,85	1,1	1,25	1,45	1,85	2,3	2,65	3,15	4
	B	0,25—0,35	0,51	0,64	0,73	0,87	1,1	1,4	1,6	1,9	2,35	3	3,4	4,05	5,1
Гусеничные тракторы Tracked tractors	H	0,6—0,7	0,34	0,43	0,49	0,58	0,73	0,92	1,05	1,25	1,6	2	2,3	2,7	3,4
	B	0,4—0,5	0,39	0,49	0,56	0,67	0,84	1,05	1,2	1,45	1,8	2,3	2,6	3,1	3,9
Радиолокационная техника и средства связи **Radar technology**															
Радиолокационные станции типа СОН-4 SON-4 radar	H	0,35—0,5	0,43	0,54	0,62	0,73	0,93	1,15	1,35	1,6	2	2,5	2,9	3,4	4,3
	B	0,3—0,4	0,5	0,63	0,72	0,85	1,1	1,35	1,55	1,85	2,3	2,9	3,35	4	5
Радиолокационные станции типа П-12М и П-15 P12M and P15 radar	H	0,15—0,2	0,75	0,95	1,1	1,3	1,6	2	2,35	2,8	3,5	4,4	5	6	7,5
	B	0,15—0,2	0,85	1,1	1,25	1,45	1,85	2,3	2,65	3,15	4	5	5,7	6,75	8,5
Радиолокационные станции типа ПРВ-10 и П-20 PRV10 and P20 radar	H	0,12—0,18	0,9	1,15	1,3	1,55	1,95	2,45	2,8	3,3	4,2	5,25	6	7,15	9
	B	0,12—0,18	0,96	1,2	1,4	1,65	2,05	2,6	3	3,55	4,45	5,6	6,45	7,6	9,6
Войсковые автомобильные радиостанции (повреждение кузовов и антенных устройств) Military vehicle radios	H	0,2—0,3	0,6	0,75	0,86	1	1,3	1,6	1,85	2,2	2,8	3,5	4	4,75	6
	B	0,2—0,3	0,63	0,79	0,91	1,1	1,35	1,7	1,95	2,3	2,9	3,7	4,2	5	6,3
Переносные радиостанции Portable radios	H	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,15	1,45	1,7	2	2,5
	B	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4	1,75	2	2,4	3

Portable radios

Телефонно-телеграфная аппаратура Telephone sets	Н	0,6—0,9	0,32	0,4
	В	0,4—0,6	0,36	0,45

94

0,46	0,55	0,69	0,87	1	1,2	1,5	1,85	2,15	2,55	3,2
0,52	0,61	0,77	0,97	1,1	1,3	1,65	2,1	2,4	2,85	3,6

95

Таблица 23

Радиусы зон, *км*, в которых на антеннах высотой более 10 *м* и воздушных линиях связи при наземных и низких воздушных ядерных взрывах наводится напряжение, превышающее 10 и 50 *кв*

Radii in km for EMP in 10m antennas

Мощность взрыва, тыс. *т*	Наводимое напряжение, *кв*	
	10	50
1	2	1
10	2,5	1,3
100	3	1,5
1000	3,3	1,7

Nuclear yield

kilotons

Induced voltage, kV

(Surface and low air bursts)

Таблица 24

Радиусы зон, *км*, в которых между жилой подземной неэкранированной кабельной линии длиной более 1 *км* и землей при наземных и низких воздушных ядерных взрывах наводится напряжение превышающее 10 и 50 *кв*

Мощность взрыва, тыс. *т*	Наводимое напряжение, *кв*	
	10	50
1	1,1	0,4
10	1,6	0,6
100	2	0,7
1000	2,4	0,9

Nuclear yield

kilotons

Induced voltage, kV

EMP in >1 km long underground unshielded residential power cables

КРАТКИЙ СПРАВОЧНИК ПО БОЕВЫМ СВОЙСТВАН ЯДЕРНОГО ОРУЖИЯ (A Brief Guide to the Combat Properties of Nuclear Weapons), 2nd edition, Secret, Chapter 5: Electromagnetic Pulse, p71, tables 23 and 24.

Russian nuclear weapons combat manual specifies fallout pattern for infinite time dose contours of 40, 400, and 1200 R outdoors (unshielded), not dose rates

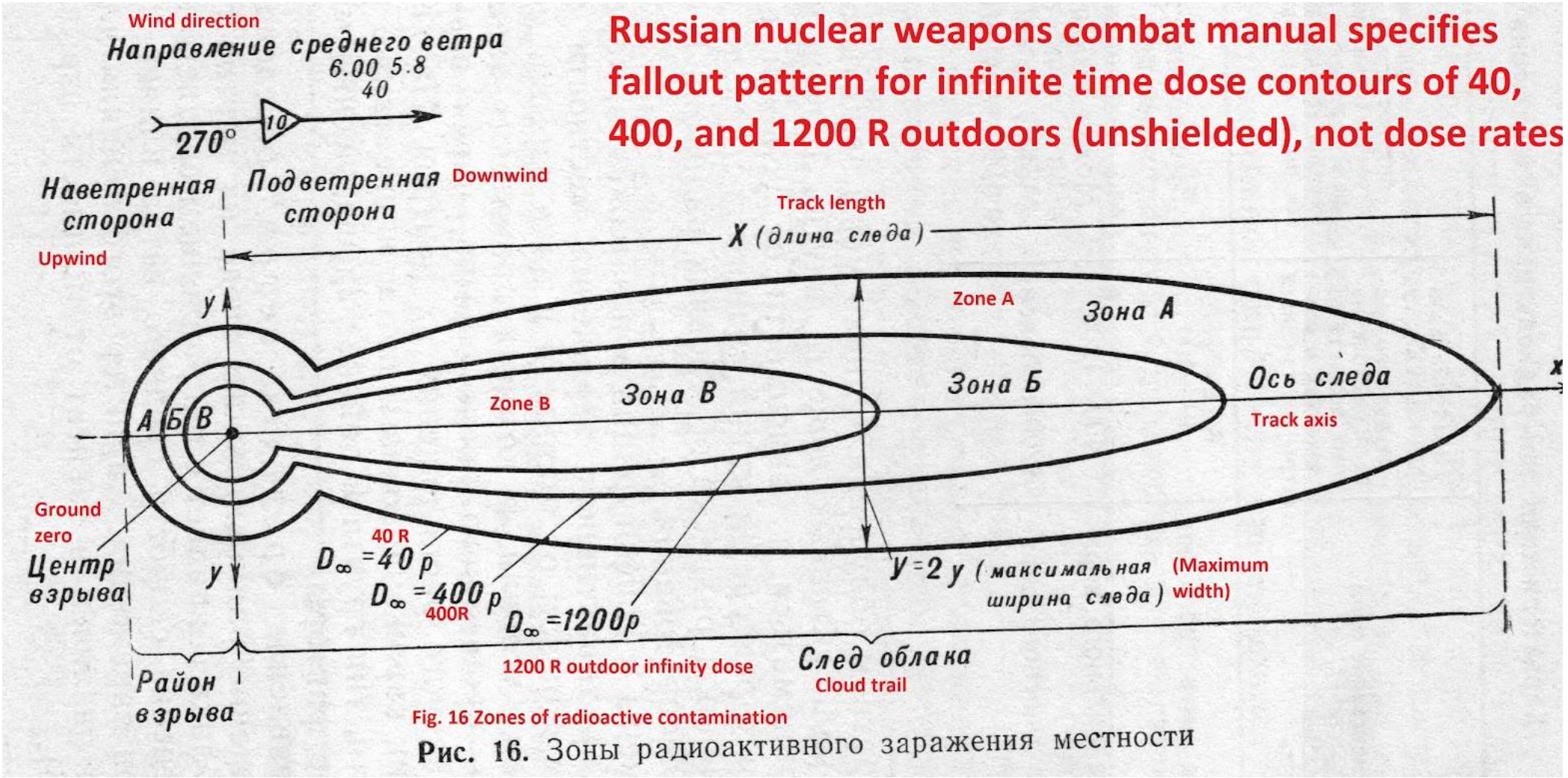
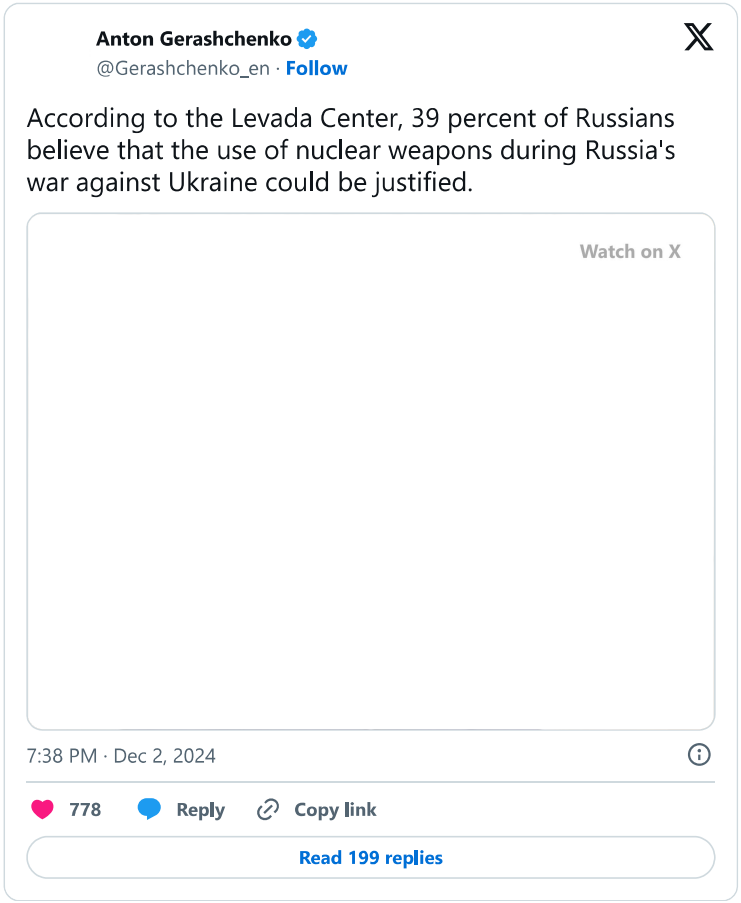


Fig. 16 Zones of radioactive contamination

Рис. 16. Зоны радиоактивного заражения местности



Update, November 20, 2024: **https://www.reuters.com/world/europe/putin-issues-warning-us-with-new-nuclear-doctrine-2024-11-19/**: "Putin issues warning to United States with new nuclear doctrine, by Guy Faulconbridge and Anton Kolodyazhnyy, November 20, 2024 12:20 AM GMT MOSCOW, Nov 19 (Reuters) - *Russian President Vladimir Putin on Tuesday lowered the threshold for a nuclear strike in response to a broader range of conventional attacks, and Moscow said Ukraine had struck deep inside Russia with U.S.-made ATACMS missiles. Putin approved the change days after two U.S. officials and a source familiar with the decision said on Sunday that U.S. President Joe Biden's administration allowed Ukraine to use U.S.-made weapons to strike deep into Russia. Russia had been warning the West for months that if Washington allowed Ukraine to fire U.S., British and French missiles deep into Russia, Moscow would consider those NATO members to be directly involved in the war in Ukraine. The updated Russian nuclear doctrine, establishing a framework for conditions under which Putin could order a strike from the world's biggest nuclear arsenal, was approved by him on Tuesday, according to a published decree. ... The U.S. National Security Council said it had not seen any reason to adjust the U.S. nuclear posture. ... Putin is the primary decision-maker on the use of Russia's nuclear arsenal. ... The doctrine said any attack by a non-nuclear power supported by a nuclear power would be considered a joint attack, and that any attack by one member of a military bloc would be considered an attack by the entire alliance ... Lavrov said Russia would do everything to avoid nuclear war, and pointed out that it was the U.S. which used nuclear weapons against the Japanese cities of Hiroshima and Nagasaki in 1945. ... Kremlin spokesman Dmitry Peskov said ... "Nuclear deterrence is aimed at ensuring that a potential adversary understands the inevitability of retaliation in the event of aggression against the Russian Federation and/or its allies"*."

Jerusalem Post, AUGUST 26, 2024 14:55, https://www.jpost.com/international/internationalrussia-ukraine-war/article-816333: "... Russia planned overwhelming strikes across Western Europe, with nuclear weapons intended for use in combination with other destructive weapons and means. The files show that Russia retained the capability to carry nuclear weapons on surface ships, which increases the risks of escalation or even accidents. They also suggest that Russia views tactical nuclear weapons as potentially decisive in conflicts ... Russia's military strategy is described as aiming for "total war," with tactical nuclear weapons seen as crucial for achieving war-winning objectives. The files ... also reference a "demonstration strike," or the detonation of a nuclear weapon in a remote area, "in a period of immediate threat of aggression" before an actual conflict to scare Western countries. The file said that a strike like this would show "the intention to use nuclear weapons." Recent Russian exercises have involved rehearsing the use of tactical nuclear weapons, consistent with the strategies outlined in the leaked documents. This preparation includes loading anti-ship missiles with nuclear warheads and practicing the handling and deployment of nuclear warheads, suggesting that the threat of nuclear escalation remains a significant aspect of Russia's military planning."

Max Seddon and Chris Cook, "Leaked Russian military files reveal criteria for nuclear strike", *Financial Times* newspaper (UK), 28 Feb 2024: "The exercises offer a rare insight into how Russia views its nuclear arsenal as a cornerstone of its defence policy — and how it trains forces to be able to carry out a nuclear first strike in some battlefield conditions. ... The slides summarise the threshold as a combination of factors where losses suffered by Russian forces “would irrevocably lead to their failure to stop major enemy aggression”, a “critical situation for the state security of Russia”. ... Russia’s military is also expected to be able to use tactical nuclear weapons for a broad array of goals, including “containing states

from using aggression ... or escalating military conflicts", "stopping aggression", preventing Russian forces from losing battles or territory, and making Russia's navy "more effective". Putin said last June that he felt "negatively" about using tactical nuclear strikes, but then boasted that Russia had a larger non-strategic arsenal than NATO countries. "Screw them, you know, as people say," Putin said. ... The documents reflect patterns seen in exercises the Russian military held regularly before and since Putin's full-scale invasion of Ukraine in 2022. ... While Russia's president has the sole authority to launch a first nuclear strike, the low threshold for tactical nuclear use set out in the documents conforms with a doctrine some western observers refer to as "escalating to de-escalate". ***Under this strategy a tactical weapon could be used to try to prevent Russia from becoming embroiled in a sprawling war, particularly one in which the US might intervene. Using what it calls "fear inducement", Moscow would seek to end the conflict on its own terms by shocking the country's adversary with the early use of a small nuclear weapon — or securing a settlement through the threat to do so.***"

Dr Mark B. Schneider, *The Leaked Russian Nuclear Documents and Russian First Use of Nuclear Weapons,* National Institute for Public Policy, Information Series Issue No. 579, March 18, 2024: "Typically, Western press reporting on Russian nuclear issues involves interviewing the normal coterie of left-wing "experts" who are more interested in reducing the U.S. nuclear deterrent than understanding Russian nuclear strategy and its implications. In contrast, the Financial Times presented an insightful analysis concerning the meaning of the Russian documents. Still, the analysts who historically have been most accurate in their assessment of Russian nuclear weapons policy were not among them (e.g., Dr. Stephen Blank, Dr. Keith Payne, and Mr. Dave Johnson). Russian nuclear weapons policy is very dangerous; it is closely tied to military aggression and repeated high-level nuclear threats.

"In 2015, in the time frame of the leaked Russian documents, NATO's Secretary General Jens Stoltenberg observed, "Russia's recent use of nuclear rhetoric, exercises and operations are deeply troubling ... Russia's nuclear sabrerattling is unjustified, destabilizing and dangerous." Since then, the situation has clearly gotten worse. The Biden Administration's 2022 Nuclear Posture Review also noted that: "The Russian Federation's unprovoked and unlawful invasion of Ukraine in 2022 is a stark reminder of nuclear risk in contemporary conflict. ... In brandishing Russia's nuclear arsenal in an attempt to intimidate Ukraine [and NATO] ... Russia's leaders have made clear that they view these weapons as a shield behind which to wage unjustified aggression against their neighbors. Irresponsible Russian statements and actions raise the risk of deliberate or unintended escalation". ... Medvedev even threatened "the further existence of the entire human civilization" if Russia ends up defeated in Ukraine by the West ... in 2014, Russian expatriate Nikolai Sokov reported "... all large-scale military exercises that Russia conducted beginning in 2000 featured simulations of limited nuclear strikes." The January 2016 report of NATO's Secretary General noted that Russia "... simulated nuclear attacks on NATO Allies (e.g., ZAPAD) and on partners (e.g., March 7, 2013 simulated attacks on Sweden) ...

"Russian nuclear exercises against non-nuclear Sweden are particularly important because Sweden, like Ukraine (against which Russian nuclear threats are frequent), is not supposed to be subject to nuclear attack under Russian negative assurances (i.e., Russia's pledge not to use nuclear weapons against non-nuclear states.) Yet, in March 2022, "Swedish TV4 Nyheterna has reported that Russian bombers 'armed with nuclear warheads' entered EU airspace before being intercepted by Swedish fighter jets." ... the United States cannot depend upon Russia's observance of the so-called "nuclear taboo" to protect the West from Russian nuclear attack. ... Only credible nuclear deterrence can safeguard the West, yet nuclear deterrence is under attack by the disarmament groups globally. The context of this is a Russian nuclear modernization program which according to Putin has already achieved 95% and will continue even after 100% is achieved. ... Despite the clear and present danger of Russian aggression and even nuclear escalation, as Dr. Keith Payne has pointed out, the Biden Administration's 2022 Nuclear Posture Review "appears frozen in the naively-optimistic post-Cold War years; it suggests no urgency with regard to U.S. responses to mounting threats."

"By 2035, the same year DOD reported that the Chinese will reach rough numerical parity with U.S. deployed forces, 100% of U.S. nuclear weapons (the warheads and bombs) will have exceeded their design lives by an average of 30 years. ... The United States has agonized for years about how to sustain its nuclear weapons. During the Bush Administration, the plan was the Reliable Replacement Warhead (RRW), which would have been a "new" weapon with a "new" design to replace the W-76 submarine-launched warhead. Its "newness" was its peril and it was cancelled before the end of the design phase of development to satisfy those who believed the U.S. shouldn't build "new" nuclear weapons. ... Similarly, the United States is refurbishing the B-61 gravity bomb so that it may remain in service in the extended deterrence mission. ... The United States invented plutonium in 1941. Yet, it has not been able to build a plutonium pit for the nuclear weapons stockpile since 1989, when the Rocky Flats plant was shut down. ... Just consider: General Anthony Cotton, USAF, the current head of U.S. STRATCOM, informed Congress this Spring that "Russia continues to update its warhead production complex and is producing hundreds of warheads each year." Further, he explained that Russia is exporting its Highly Enriched Uranium to the People's Republic of China for its CFR-600 fast breeder reactors, which produce plutonium."

- Tim Morrison, *There's More than One Kind of Deterrence Failure*, https://www.hudson.org/missile-defense/theres-more-one-kind-deterrence-failure-tim-morrison

John Foster Dulles, US Secretary of State, *12 January 1954 Massive Retaliation Doctrine Speech*, Council of Foreign Relations, New York (published in the US Department of State Bulletin v30 n761, 25 January 1954): "We want, for ourselves and other free nations, a maximum deterrent at a bearable cost. ... Local defences must be reinforced by the further deterrent of massive retalitory power. ... Otherwise, for example, a potential aggressor who is glutted with manpower might be tempted to attack in confidence that resistance would be confined to manpower."

The Economist, 2 February 1954: "In a situation where war is not declared and aggression can be waged by proxy [e.g. today's USA/UK/Ukaine-Russian war], the decision for or against using atomic weapons may be far less simple in fact than it appears ... More than ever before, those who think in terms of stopping or winning wars by atomic bombing have to reckon with reprisals in kind [assuming that you do not disarm the enemy in a successful first strike to prevent retaliation, or that you or the enemy doesn't have an efficient system of ABM and civil defense to make the "retaliation" a pathetic "token gesture"] ... Against what kind of aggression is 'massive retaliatory power' to be used? ... there seems to be the risk that the strict and literal application of the Dulles doctrine could turn minor and limited hostilities into major conflict." [Therefore, to deter escalation you need a broad spectrum of credible deterrents against the full range of enemy provocations.]

Field Marshall Montgomery, British Deputy to SACEUR (Supreme Allied Commander Europe), "A Look Through a Window at World War III", *Royal United Services Institute Journal*, November 1954: "I want to make it absolutely clear that we at SHAPE are basing all our operational planning on using atomic and thermonuclear weapons for our defence. With us it is no longer: 'They may possibly be used.' It is very definitely: 'They will be used, if we are attacked.' The reason for this action is that we cannot match the strength that could be brought against us unless we use nuclear weapons. ... In fact, we have reached the point of no return as regards the use of atomic and thermonuclear weapons in a hot war ... The problem will be, how to force the enemy to concentrate his armed forces sufficiently to offer a worth-while nuclear target, without exposing our own forces to destruction by the enemy's nuclear attack."

Prime Minister Winston Churchill, 1 March 1955, House of Commons: "There is a widespread belief through the free world that, but for American nuclear superiority, Europe would have already been reduced to satellite status and the Iron Curtain would have reached the Atlantic and the Channel ... We, too, must possess substantial deterrent power on our own." (Churchill's Minister of Defence, Harold Macmillan, then argued for tactical nuclear weapons in the Middle East and the Far East, and stated that leaving nuclear deterrence to the USA "surrenders our power to influence American policy and then, strategically and tactically, it equally deprives us of any influence over the selection of targets and use of our vital striking forces." In the 1957 Labour Party Annual Conference at Brighton, the British Labour Party's shadow Foreign Secretary, Aneurin "Nye" Bevan, begged delegates to reject the Noel-Baker nuclear disarmament plan: "if you carry this resolution and follow out all of its implications and do not run away from it, you will send a British Foreign Secretary, whoever he may be, naked into the Conference Chamber". A more telling fact is statistical: despite all the one-sided mass-media anti-nuclear, anti-radiation and anti-civil defence propaganda, Christopher Driver's 22 March 1964 *Observer* newspaper article "The Rise and Fall of CND" reported that British public opinion polls showed that only 20% of people disapproved of the use of nuclear weapons in August 1945, and this percentage only increased to 33% when CND's propaganda influence peaked, in 1957-60, due to ICBM testing and and fallout news scares from tests. The problems of not

having a credible deterrent were still remembered from the 1930s despite media saturation with Russian Sputnik/Comintern style "peace propaganda" lies. As Clausewitz stated in Book 6, Chapter 5 of *On War:* "A conqueror is always a lover of peace; he would like to make his entry into our state unopposed." Stalin also said as much when interviewed by the writer H. G. Wells in 1934: "Communists ... would be very pleased to drop violent methods if the class agreed to give way ..." Contrary to CND people there's never been the slightest problem with our nuclear weapons being too big or "nuclear overkill," since reducing nuclear yields by removing boost gas and secondary stages is the easiest thing in the world, similarly, while bleach exists to remove the colour from flags, there have never been an difficulty in having "peace conferences" and agreeing to compromise on "peace at any price" with dictators; all of the difficulties have been in the opposite direction, e.g. *designing nuclear weapons as credible deterrents to stop the sorts of provocations that escalate into world wars where the democracy has to declare war first as in 1914 and 1939*. It was Lenin who wrote: "As long as capitalism and socialism exist, we cannot live in peace: in the end one or the other will triumph.")

for short-lived radioisotopes to die, the addition of chemicals in treatment plants would further cut radioactivity. Says University of California Professor Everett R. Dempster: "Fallout is a thing to be avoided, but we're not at the danger point yet. To me the issues of peace and war are very much more important than fallout and mutations."

Polishing the Adjectives. It is in the interests of those issues that the U.S. finds itself with little choice but to resume atmospheric testing. Though the Administration has not yet decided just when to begin testing, pressure grew in Congress for a quick test resumption. New Mexico's Senator Clinton P. Anderson and California's Representative Chet Holifield—the two senior Democrats on the Joint Congressional Committee on Atomic Energy—called last week in strong words for atmospheric tests. Said Anderson: "We must conduct atmospheric tests because the underground tests have not given us all the answers we need." Connecticut's Democrat Senator Thomas J.

Because of more advanced techniques, the U.S. atmospheric tests will produce



ticut's Democrat Senator Thomas J. Dodd demanded a crash program of testing to develop a deadly neutron bomb (TIME, July 7), which scientists still consider several years away from reality. Added Georgia's Democratic Senator Richard B. Russell: It is essential to "conduct some atmospheric tests—until we perfect the neutron bomb."

Opposition to renewed testing was not based so much on fear of fallout as the



YOSUKE YAMAHATA—ATOM BOMBED NAGASAKI

NAGASAKI SURVIVOR

ABOVE: Time magazine of 10 November 1961, pages 19 and 25, reporting on arguments to test the "neutron bomb", also showing example of a shelter in Nagasaki and Russian civil defense. Although tested by Kennedy, the neutron bomb never made it into any edition of Glasstone's "Effects of Nuclear Weapons", any more than photos of surviving shelters in Nagasaki (which had been included the 1950 "Effects of Atomic Weapons" but were removed from "Effects of Nuclear Weapons" 1957-77, a sure proof of the use of secrecy to undermine credible nuclear deterrence: *if you can't even combat enemy nuclear propaganda in peace, how can you combat the enemy on the battlefield in war?*. This blog has been now updated (December 2024) to provide additional background testimonial evidence to show how secrecy was used to suppress Oppenheimer's plans for tactical nuclear deterrence, due to opposition by strategic bombing advocates who kept the Strategic Bombing Survey reports on Hiroshima and Nagasaki secret!

seem to mind, or even notice, when the drizzle turned into a steady rain.

Roomy Tomb. What seemed to be coming under question in Russia last week was the system itself. Unless Khrushchev is prepared again to silence his people, he must give believable answers to the two most trenchant questions about Communism: How could it allow a man like Stalin to seize complete control, and how can it prevent the rise of another Stalin? Khrushchev is trying to show that Stalin's tyranny was the result of one man's villainous character; the Russian people may wonder whether, in essence, it was not really the inevitable result of Communism.

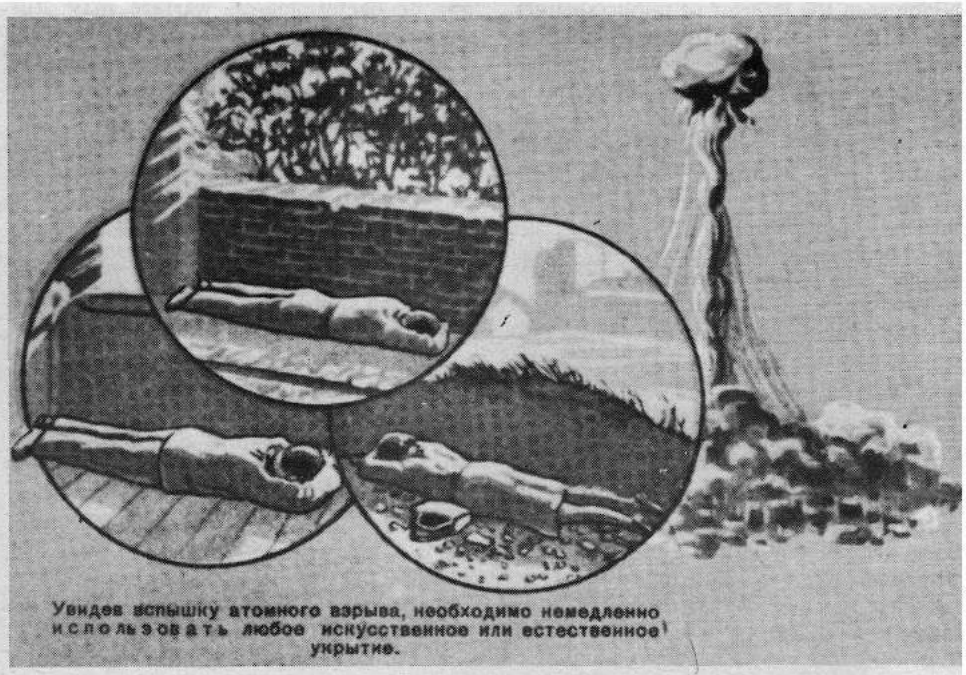
Whatever the doubts and questions, by week's end the roomy tomb on Red Square was once more open to the public, but with Stalin's name as well as his body expunged from sight.

RUSSIA

Shelters on the Other Side

With broad sarcasm, *Pravda* Columnist S. Vishnevsky dismissed the budding U.S. atom-bomb shelter program. "If we could only open the eyes of those moles," he wrote recently, "they would surely see that there is no sense in hiding underground. But moles are unseeing creatures and moles of bourgeois origin suffer from class blindness." The sneer was less than convincing, for the writer must have known what most of the U.S. does not: the Soviet Union has been at work for more than a decade on a shelter program of its own, spending an estimated $500 million a year (current U.S. figure: $16,500,000) on civil defense training courses for 22 million Soviet citizens, equipping bomb shelters for more than 30% of the population.

Russian preoccupation with civil defense is nothing like the current U.S. wave of concern about shelters. Unlike the U.S., the Soviet Union started its civil defense program long ago, has proceeded routinely without public debate or fanfare. No new shelter construction is



Soviet Civil Defense Guide
An assumption that war will begin favorably.

Gouré, accounts for the absence of bomb shelter signs on buildings. "Because they believe they will have more time before attack than we," he says, "they have planned for putting up such signs during a long-range alert. The shelters are there, but they aren't posted. During my trip, I asked a man in Stalingrad about a vented block of unmarked concrete sticking out of the sidewalk. 'Ah,' he said with a shrug, 'it's a shelter exit,' as if to say—so what's unusual about that."

Documentary Evidence. Gouré also spotted what he thinks are signs of retractable, blastproof doors to station entrances of the 43-mile-long Moscow subway, whose circular, concrete tunnels could house one million people—20% of the city's population. (Leningrad has about eight miles of subway, and the first stage of the Kiev subway has six miles of track.) But mostly, Gouré's evidence for a thoroughly planned Russian civil defense effort is the torrent of pamphlets, charts and decrees issued to the public through DOSAAF (All-Union Voluntary Society for the Promotion of the Army, Aviation and Navy), a 22 million member organization that also gives training in shooting, parachute jumping and other paramilitary sports.

How seriously the Russians take such paper planning is debatable: the newspaper *Sovetskii Patriot* reports that some trainees attended civil defense meetings "with bored expressions and sat next to the exit," while others jolted instructors by arguing, "There is no place to hide from an atomic explosion anyway." But bored or not, by next year DOSAAF members and others will have attended 64 hours of courses, half of them spent in such practical matters as operating shelter equipment, first aid, fallout decontamination procedures. Children between 12 and 16 get similar training in schools.

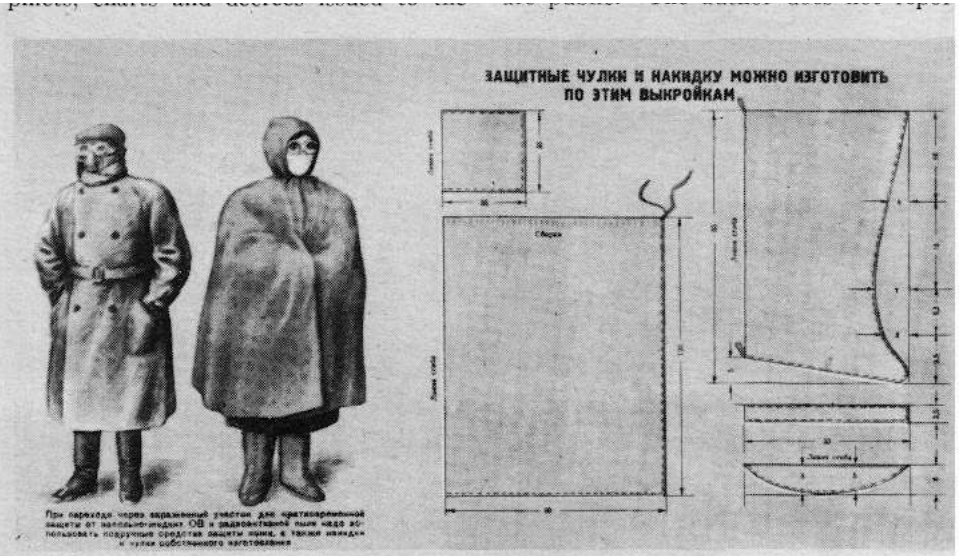
People & Cattle. In contrast to the U.S., reports Gouré, "the great majority of shelters, especially the permanent kind are public." The author does not report

seen; there are few civil defense posters and no air-raid drills in the largest cities.

All this has led many Western observers in Moscow to conclude that Russia has little, if any, civil defense planning. Such a view is sharply questioned in a forthcoming book, *Civil Defense in the Soviet Union*, by Rand Corp. Analyst Leon Gouré.

Unmarked Concrete. Moscow-born Gouré, 39, son of an economist who fled Russia in 1923, joined the U.S. Army as a counterintelligence agent in World War II, has worked as a Russian expert ever since. Last year he spent a month touring nine Soviet cities. Says he: "The Soviets' is not a crash program. It has never been tied to a crisis like ours, so naturally it is not a Number One subject of conversation."

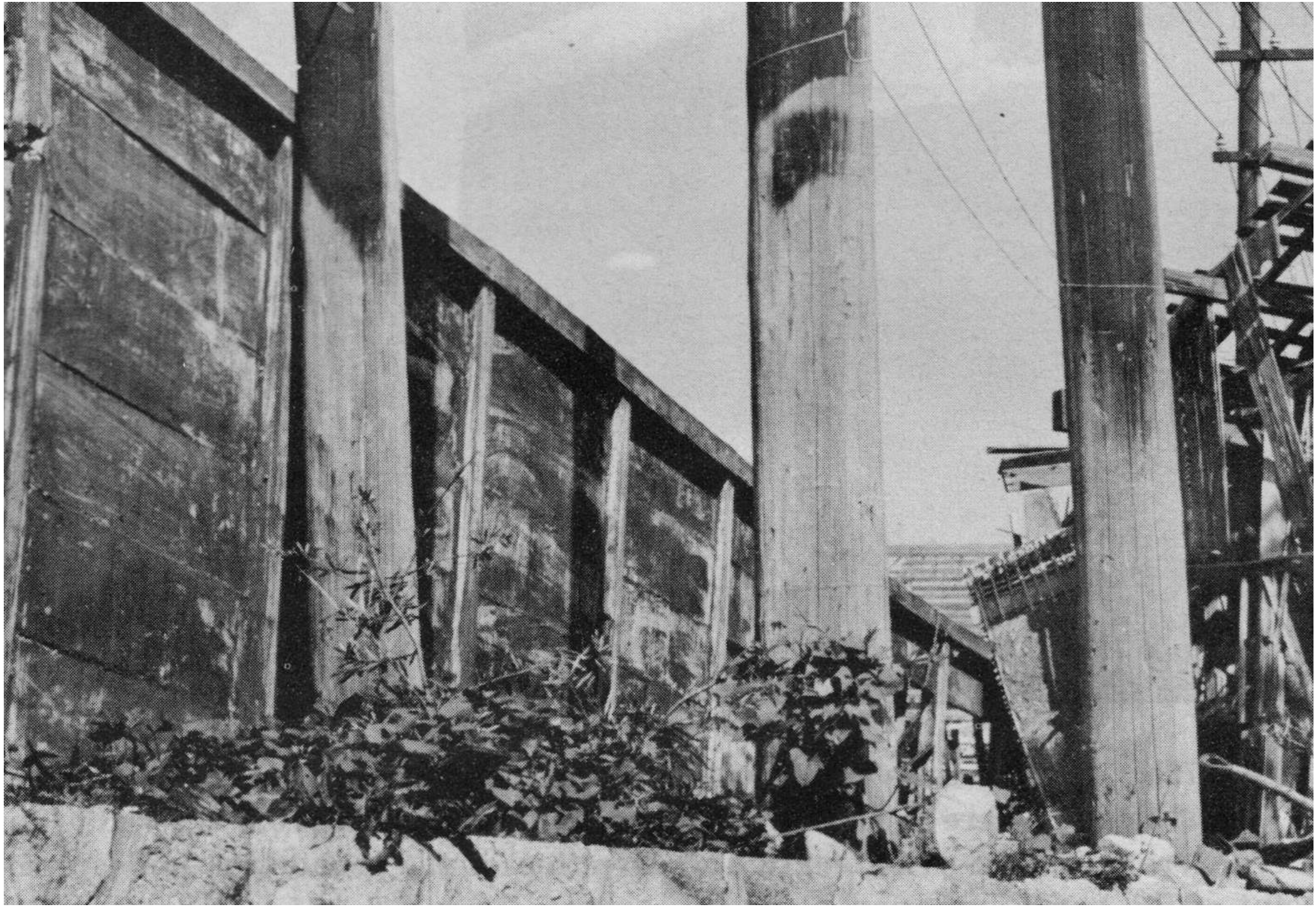
The lack of a crisis atmosphere, plus Russian reliance on the fact that the U.S. will not engage in a surprise attack, thinks

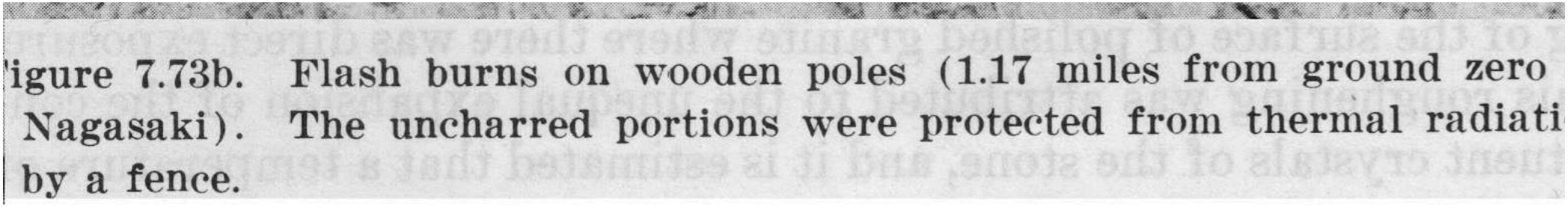


SOVIET FALLOUT SUITS
An eye-opener for Western moles.

RAPID BLAST WAVE ATTENUATION BY WORK DONE IN CAUSING DAMAGE TO MODERN CITIES, DISPROVING STRATEGIC COUNTERVALUE DETERRENT PROPAGANDA USING IDEAL FLAT DESERT TERRAIN FOR BLAST WAVE PARAMETERS IN ALL EDITIONS OF GLASSTONE'S BOOK *THE EFFECTS OF NUCLEAR WEAPONS*, EVEN THE FINAL 1977 EDITION WHICH ACTUALLY CITES PENNEY'S PAPER DISPROVING THIS!

For an introduction to this, please see our **2015 post analyzing blast attenuation by cities (linked here).**





ABOVE: Penney told J B Cook that he spent £450 on baggage excess in Japan, air-lifting critical "blast pressure sensitive" debris from Hiroshima to London to ensure it was properly analysed, plus did specific nuclear air bursts at Maralinga to provide comparisons to Hiroshima and Nagasaki to determine blast attenuation by damage done to a city! Glasstone cited Penney's 1970 data report, yet completely ignored (and even contradicted) it! This was simply a cover-up.

11 June 1970 Price £2. 8s. (U.S. $6.25)

The nuclear explosive yields at Hiroshima and Nagasaki

by Lord Penney, F.R.S., D. E. J. Samuels and G. C. Scorgie

8. Recapitulation of yield estimates and best values

We recapitulate our estimates of the nuclear explosive yields and present the values in tables 8 and 9. The order in which the observations are given does not follow the section number, but has been chosen according to the distance from ground zero. The yield estimates have all been made in terms of an explosion over bare ground, whereas the mechanical damage done by the blast and the scattering of the blast by buildings in the two cities must to some extent have reduced the blast waves as the waves spread.

51-3

Table 8. Hiroshima

observation	distance GZ/ft	yield/kT	reliability	comments
collapsed blue print container	4580	peak overpressure down 30 %	?	may have been some elastic recovery and/or some reflation; yield falling?
dishing of tops of office cabinets	4580	9	f	yield falling?
10 to 20 % of empty	5700	peak over-	g	clear evidence that the blast was less than it

4-gal petrol cans undamaged		pressure down by about half		would have been from an explosion over an open site

Table 9. Nagasaki

observation	distance GZ/ft	yield/kT	reliability	comments
overturning of memorial stones	4610	$\geqslant 19\frac{1}{2}$	g	should be a close under-estimate;
	5430	> 19 to 21	g	density of stone not known accurately
0 to 20% of empty 4-gal petrol cans undamaged	6400	peak over-pressure down by about half	g	clear evidence of reduction of blast by the damage caused and by scattering
no damage to empty 4-gal petrol cans	7600	over-pressure not much over 1 lbf/in^2	g	clear evidence of reduction of blast

Table 15.3 on p523 gives nominal ductilities for severe damage (collapse) of u = 10 for MSSF (multistorey steel frame), u = 7.5 for WF (wood frame) and u = 7.5 for MSRC (multstorey reinforced concrete)

or nondimensionally as:

$$T^2\ddot{\mu} + 4\pi\zeta T\dot{\mu} + 4\pi^2\mu = 4\pi^2\, P(t)/r_y \ , \qquad (15.11)$$

where

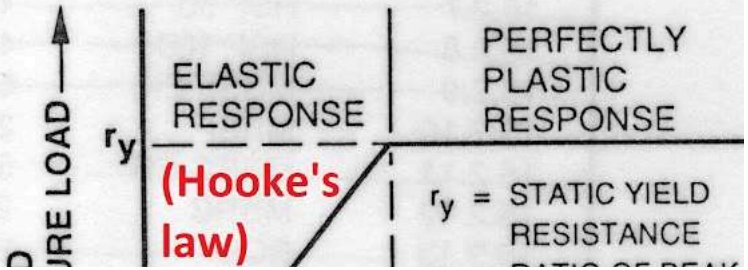
μ = x/x_e is the ductility
ζ = c/c_{cr} is the damping ratio
c_{cr} = $2m\omega$ is the critical damping
r_y = kx_e is the static yield resistance (force)
T = $2\pi/\omega$ is the natural period
$P(t)$ = applied pressure load (as defined in Sections 15.1.1.1 and 15.1.1.2 and $\dot{u}$ and $\ddot{u}$ are the first and second time derivatives. **(Velocity, acceleratio**

Since most structural damping is less than 10 percent, it was assumed to be zero. This assumption of zero damping does not have a significant effect on the calculated peak response. The non-damped equation of motion is given by:

$$T^2\ddot{\mu} + 4\pi^2\mu = 4\pi^2\, P(t)/r_y \ . \qquad (15.12)$$

The static resistance function for these structures was defined to be elastic perfectly-plastic (Figure 15.7).

The equation of motion given in Equation 15.12 is for the elastic portion of the response calculation. Once the calculated ductility is greater than unity (i.e., the displacement is greater than the initial yield displacement) the



resistance term vanishes, and the equation of motion reduces to:

$$T^2\ddot{\mu} = 4\pi^2 P(t)/r_y \ . \qquad (15.13)$$

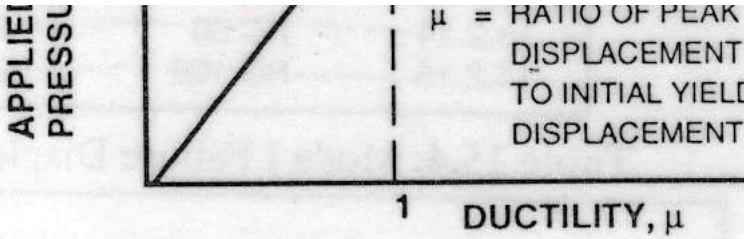
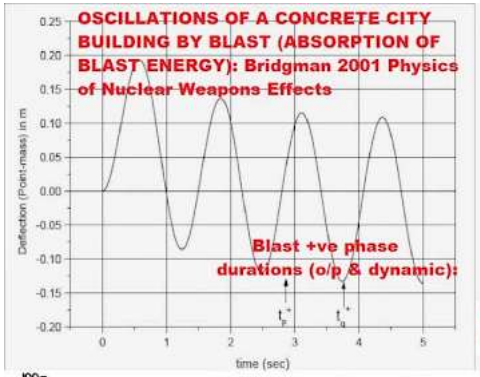
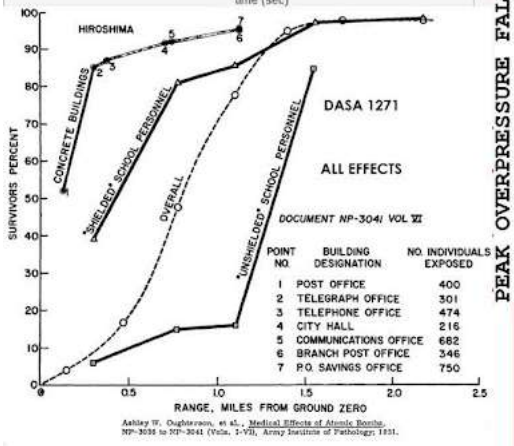
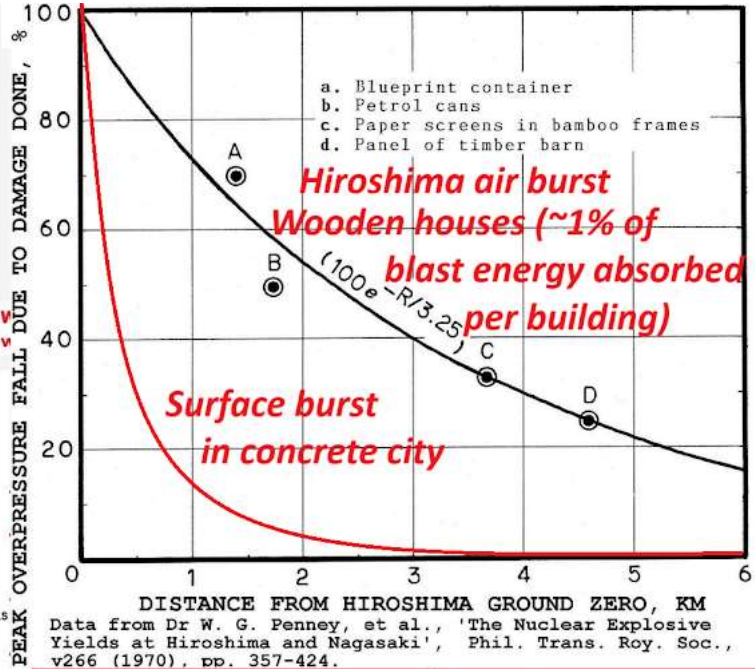


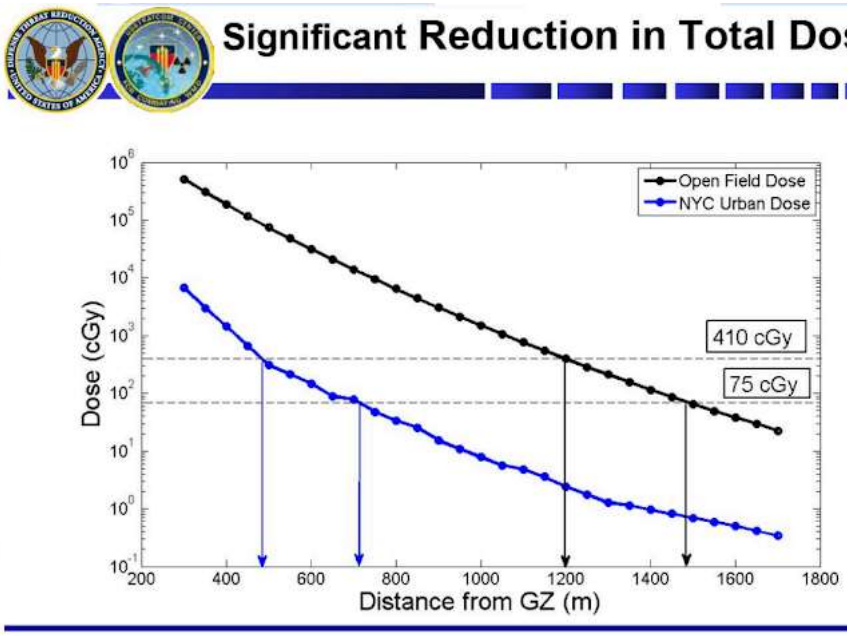
Figure 15.7. Elastic, Perfectly Plastic Resistance Function for Buildings.

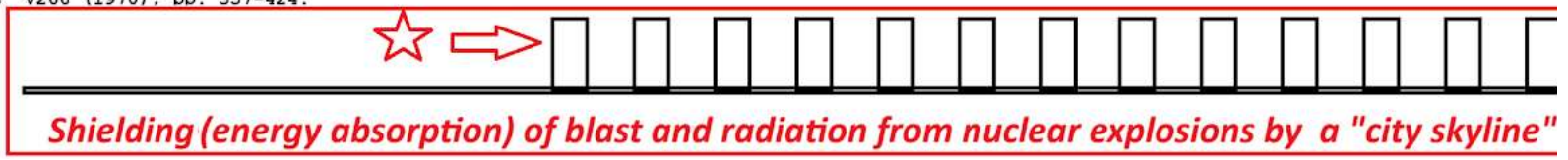
The parameter values used to define the structural characteristics are given in Table 15.6. Included are the static yield resistance r_y, natural period T, and ductilities, μ_{sev} and μ_{mod}, for severe and moderate damage. Nominal values, along with upper and lower bound for these values, are defined for each parameter.







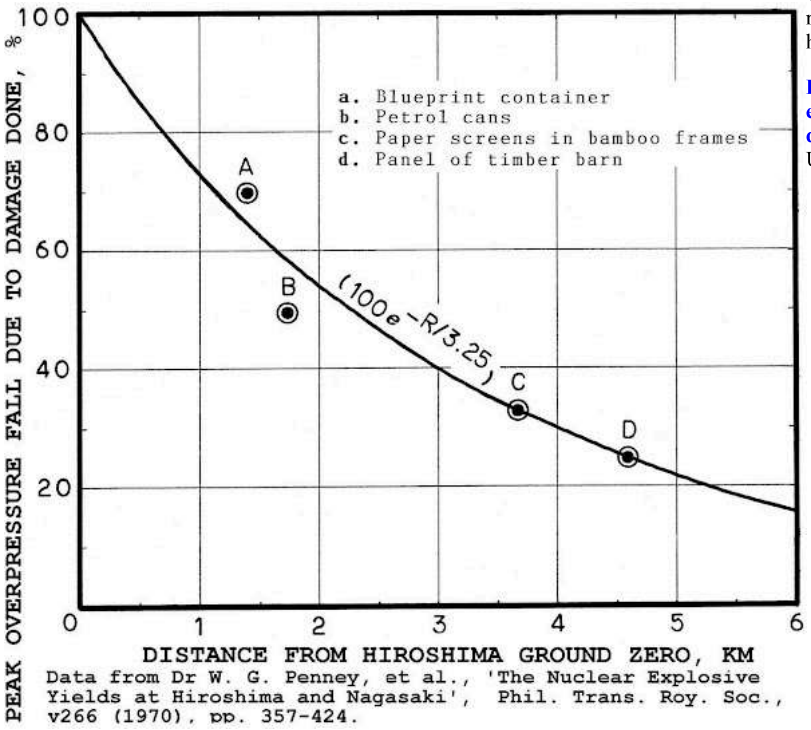




ABOVE: weak blast waves oscillate buildings within the "elastic" deformation range, absorbing up ~1% of the intercepted blast wave energy, whereas blast waves strong enough to oscillate the building well into the "plastic" deformation range can demolish modern steel and concrete city buildings (which mostly remained standing after the Hiroshima and Nagasaki air bursts) can absorb typically 10 times more energy or ~10% of the intercepted blast wave energy. Successive interactions in a large city causes a vast amount of shielding, as compared to tests conducted over flat desert or ocean. Although blast waves last longer at higher yields, *their cube-root scaled-up blast effects radii contain more buildings along any radial line than for the smaller distances of destruction at lower yields, thus offsetting the extra energy at any given scaled "free field" peak overpressure*. This was demonstrated by a study comparing blast effects at Hiroshima and Nagasaki where most of the buildings were wooden to "free field" nuclear tests by Penney, but it was suppressed by Bethe and Glasstone in the American "Bible" *Effects of Nuclear Weapons* 1957-77, which uses energy conservation violating "free field" blast and radiation data from tests over ideal unobstructed terrain. We exposed this delusion in 1990 in *Nuclear Weapons Effects Theory*, which was then censored by CND liar-duped publishers. Part of our problem is that **vital blast ductility data for determining blast energy absorption by city buildings (omitted from Glasstone and Dolan's book) is in Northrop's 1996 EM-1 book,** which not "secret" but is still officially banned from open publication by law in the USA, because it gives some information relevant to military nuclear capabilities; similarly the unclassified but "Limited Distribution" DTRA published book by AFIT Professor Bridgman, Introduction to the ***Physics of Nuclear Weapons Effects*** which can be used to demonstrate the exaggerations in Glasstone's *Effects of Nuclear Weapons* when Glasstone's free-field (unobstructed terrain) nuclear effects predictions from desert and ocean nuclear tests are improperly applied to concrete cities. Bridgman, for instance, considers a building with an exposed area of 163 square metres, a mass of 455 tons and natural frequency of 5 oscillations per second, and finds that a peak overpressure of 10 psi (69 kPa) and peak dynamic pressure of 2.2 psi (15 kPa) at 4.36 km ground range from a 1 Mt air burst detonated at 2.29 km altitude, with overpressure and dynamic pressure positive durations of 2.6 and 3.6 seconds, respectively, produces a peak deflection of 19 cm in the building about 0.6 second after shock arrival. **The peak deflection is computed from Bridgman's formula on p. 304.** This 19 cm computed maximum deflection allows us to estimate how much energy is permanently and irreversibly absorbed from the blast wave by a building (if damaged, additional energy is absorbed and is transformed into slow-moving - relative to the shock front velocity - debris which falls to the ground and is quickly stopped after the blast has passed it) by: E = Fx, where F is force (i.e., product of total pressure and area) and x is distance moved in direction of force due to the applied force from the blast wave.

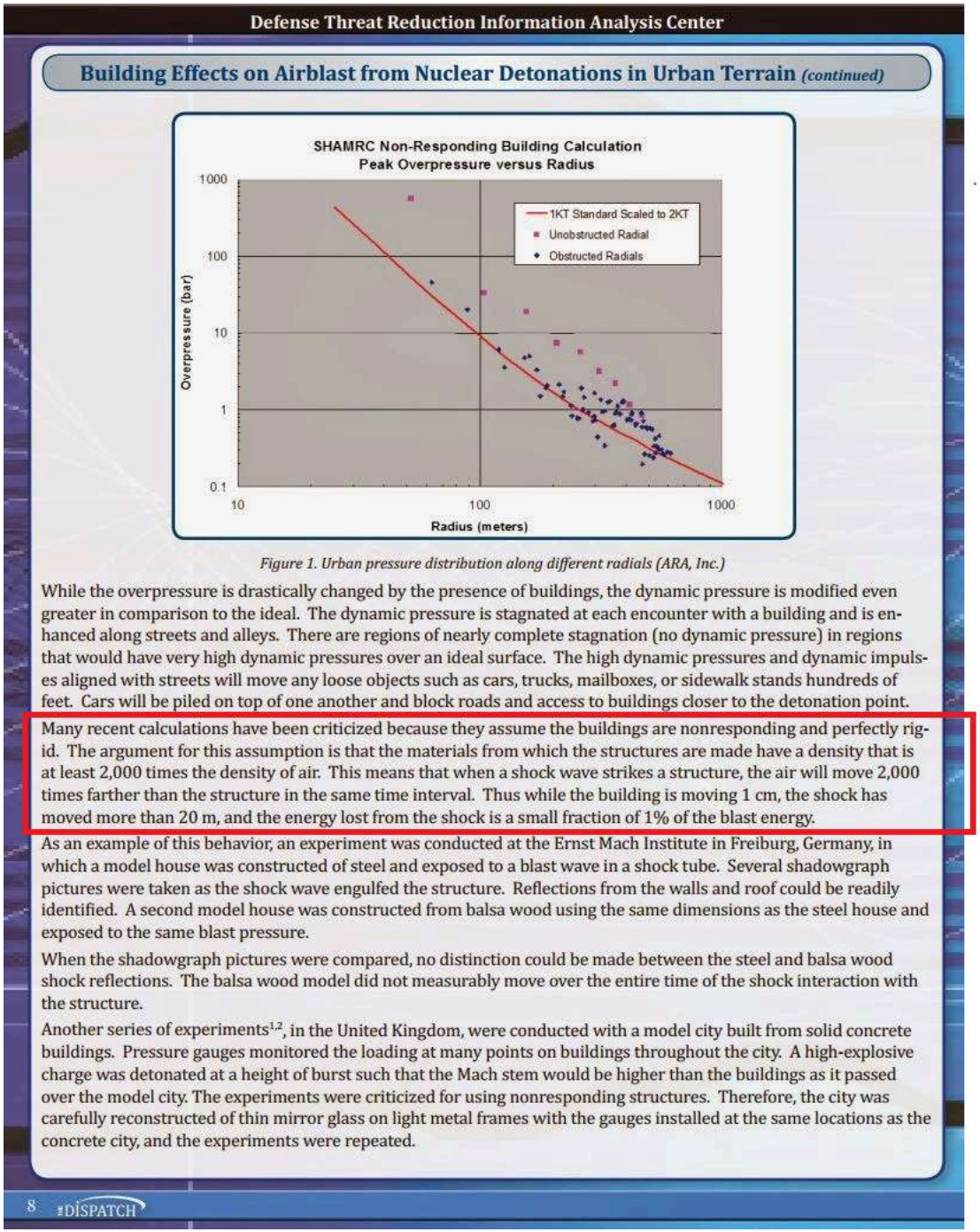
If the average pressure for the first 0.5 second is equal to 12 psi (83 kPa) then the average force on the building during this time is 13 million Newtons, and the energy absorbed is: E = Fx = 13,000,000*0.19 = 2.6 MJ, which is removed from the blast wave in the form of oscillations of the building. Successive absorption by building after building rapidly absorbs blast energy in this way.

Although you could say the blast wave from a 50% blast nuclear megaton warhead contains 2.1 x 10^15 Joules, the blast wave energy rapidly decreases as it dumps hot air behind it to form the fireball (Glasstone omits the fireball energy partition after blast breakaway, but the DELFIC mushroom cloud module shows that, to fit observed cloud parameters theoretically, fully 45% of the yield is hot air dumped behind the blast that powers the mushroom cloud rise and expansion, so 50-45 = 5% of total yield (or 1/10 of original blast yield) remains in the blast wave after the negative phase fully develops). In addition, the blast forms a 3-d hemisphere so that the percentage of the total blast energy in the Mach front intercepting buildings near the surface is small and gets smaller as the blast propagates! It is only that part which causes damage that gets attenuated; furthermore the yield scaling issue increases the building shielding effect for larger yields, because the radial distance being considered is increased. For example, in the example above, 10 psi peak overpressure (69 kPa in SI units) occurs at 4.36 km from a 1 megaton strategic bomb, but the 163 square metres of the building is only a small fraction, f, of the blast hemisphere at that range, namely f = 163/(2*Pi*4360^2) = 163/120,000,000 = 1.37*10^{-6}. So if the blast still contained 5% of the total weapon yield at this stage (1/10 of the original blast yield), the total blast energy striking the building's surface area would be just (2.1 x 10^14)* 1.37*10^{-6} = 2.9*10^8 Joules, proving that the oscillations of the building removed 2.6MJ of 290MJ blast energy intercepted, nearly 1%, which is a similar fraction to Penney's finding in Hiroshima (below).



You get additional, greater, energy loss due to damage done to buildings close to the fireball. For n such buildings in a radial line, the cumulative removal of blast energy fraction is: exp(-2.6n/290), which is *greater* for the larger blast damage distances in built up areas predicted for effects of higher yields! So increasing the yield increases the shielding for any given free-field pressure (the distance of which scales up with yield)!

Even with wooden 1-storey houses predominating in Hiroshima, Lord Penney who took away the overpressure debris (crushed petrol cans, etc) for analysis in England in 1945 found the blast energy at Hiroshima decreased exponentially due to blast attenuation caused by damage done, by comparing his results to the free-field Maralinga desert values for British nuclear tests without a precursor. This was all ignored by Uncle Sam (Glasstone)!



Defense Threat Reduction Information Analysis Center

Building Effects on Airblast from Nuclear Detonations in Urban Terrain *(continued)*

Figure 1. Urban pressure distribution along different radials (ARA, Inc.)

While the overpressure is drastically changed by the presence of buildings, the dynamic pressure is modified even greater in comparison to the ideal. The dynamic pressure is stagnated at each encounter with a building and is enhanced along streets and alleys. There are regions of nearly complete stagnation (no dynamic pressure) in regions that would have very high dynamic pressures over an ideal surface. The high dynamic pressures and dynamic impulses aligned with streets will move any loose objects such as cars, trucks, mailboxes, or sidewalk stands hundreds of feet. Cars will be piled on top of one another and block roads and access to buildings closer to the detonation point.

Many recent calculations have been criticized because they assume the buildings are nonresponding and perfectly rigid. The argument for this assumption is that the materials from which the structures are made have a density that is at least 2,000 times the density of air. This means that when a shock wave strikes a structure, the air will move 2,000 times farther than the structure in the same time interval. Thus while the building is moving 1 cm, the shock has moved more than 20 m, and the energy lost from the shock is a small fraction of 1% of the blast energy.

As an example of this behavior, an experiment was conducted at the Ernst Mach Institute in Freiburg, Germany, in which a model house was constructed of steel and exposed to a blast wave in a shock tube. Several shadowgraph pictures were taken as the shock wave engulfed the structure. Reflections from the walls and roof could be readily identified. A second model house was constructed from balsa wood using the same dimensions as the steel house and exposed to the same blast pressure.

When the shadowgraph pictures were compared, no distinction could be made between the steel and balsa wood shock reflections. The balsa wood model did not measurably move over the entire time of the shock interaction with the structure.

Another series of experiments[1,2], in the United Kingdom, were conducted with a model city built from solid concrete buildings. Pressure gauges monitored the loading at many points on buildings throughout the city. A high-explosive charge was detonated at a height of burst such that the Mach stem would be higher than the buildings as it passed over the model city. The experiments were criticized for using nonresponding structures. Therefore, the city was carefully reconstructed of thin mirror glass on light metal frames with the gauges installed at the same locations as the concrete city, and the experiments were repeated.

8 DISPATCH

U.S. Government's DTRA DISPATCH magazine, "Building Effects on Airblast from Nuclear Detonations in Urban Terrain" falsely conflates the abrupt shock front with the length of the entire blast wave, claiming that since buildings are 2000 denser than blast waves: "the air will move 2000 times father than the structure in the same time interval. Thus while the building is moving 1cm. the shock has moved more than 20m, and the energy is a small fraction of 1% the blast energy."

They meant the shock FRONT, which isn't the same thing as the entire blast wave, which is what moves buildings. So they are totally wrong.

Building density and the distance the shock FRONT has moved past has no relevance to thickness the layer of air BEHIND the shock front, which is what is pushing the building, and this thickness increases with bomb yield!

ABOVE: **error by DTRA regarding energy absorption by buildings. U.S. Government's *DTRA DISPATCH* magazine article "Building Effects on Airblast from Nuclear Detonations in Urban Terrain" falsely conflates the abrupt shock front with the length of the entire blast wave, claiming that since buildings are 2000 denser than blast waves: "the air will move 2000 times father than the structure in the same time interval. Thus while the building is moving 1cm. the shock has moved more than 20m, and the energy is a small fraction of 1% the blast energy." The key error here is the statement that "the shock has moved 20 m".** They meant the shock *front*, which isn't the same thing as the entire blast wave, the thickness of which is dependent on bomb yield, and is what moves drag-sensitive buildings with large window openings where the overpressure quickly equalises. So they are totally wrong. They are absurdly arguing that only 1/2000 of the dynamic pressure (kinetic energy per unit volume of air) of air presents a force upon buildings, or presumably upon ships sails (which are denser than air), or eardrums (again which are denser than air). The shoddy, imprecise form of their statement makes it hard to understand precisely what they are saying, but it seems to be that they are assuming falsely that the blast wave consists only of a shock front, which will move 20 m past the building (without moving it significantly) before the building has moved 1 cm, but the density of the building and the location of the shock *front* relative to the building is *IRRELEVANT* while the mass of air *BEHIND* the shock front is delivering energy to the building, as proved by the absence from the relevant equations of both building density and shock front location after it has passed, but winds are still blowing. It's not the shock front that causes the building to oscillate, but the wind pressure behind the shock front. The building density, and the distance the shock *FRONT* moves beyond the building, have no relevance to thickness the layer of air *BEHIND* the shock front, which is what is pushing the building, and this thickness increases with bomb yield! (However, most of the push to the building occurs due to the highest dynamic pressure, i.e. the air just *behind* the discontinuity or "shock front".) As a result, the actual energy absorption by a building is more than 100 times greater than DTRA's ratio of densities claims. Small-scale models of buildings, whether absolutely rigid

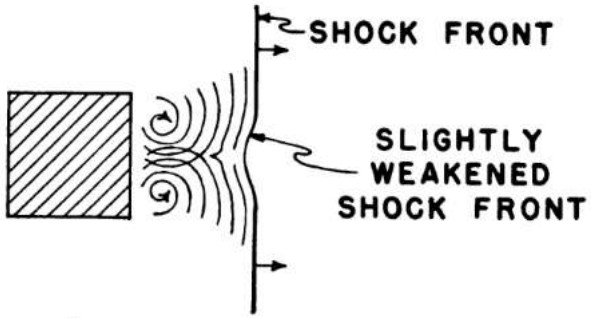
or made from glass mirrors don't in any way, shape or form model the energy captured in oscillations by thousands of tons of reinforced concrete of real buildings.

The wind (dynamic) pressure induced motion effects which have *nothing to do with the relative density of the shock front compared to the building*. The amount of energy picked up from either the wind pressure of normal breezes or the blast wave of a nuclear explosion, by a building in oscillatory energy is the time-integrated form of Newtonian equation $E = Fx$, where force $F = PA$, where P is dynamic pressure and A is area, and x is the amount of displacement induced. There's no density of the building in these equations, and no dependence on the shock front, but rather the integrated dynamic pressure over the entire duration of the blast at the location of interest (if the building delays the passage of the shock front instead of letting it pass freely through windows etc, then there's an additional term for the time-integrated overpressure contribution). As dynamic pressure is removed by the building - not by the shock front but by the air behind it, lasting seconds in higher yield detonations - the overpressure also falls as the blast restores itself to the Rankine-Hugoniot conditions (overpressure energy is transformed into dynamic pressure energy, thus weakening overpressure as well as dynamic pressure). *If DTRA were correct that only the front part (shock front) of a blast wave is relevant to delivery of energy and delivers only 1/2000 of the energy of the blast, then by analogy our eardrums and ship sails would be similarly so inefficient at picking up energy from the dynamic pressure of sound and the wind, respectively, that they couldn't work!* Notice that their computer codes in 2013 falsely EXCLUDED any absorption of energy by the blast in oscillating thousands of tons of reinforced concrete, causing damage (much larger, huge amounts of energy are required to actually destroy reinforced concrete by permanent deformation; the springy oscillations of a building in a gale or blast wave take up far less energy than actual destruction requires), contrary to what John von Neumann pointed out (that buildings are NOT rigid but absorb energy from the blast, decreasing the blast parameters like pressures and impulses as the blast propagates through a city, unlike desert or ocean in unobstructed terrain nuclar tests!) in the 1950 *Effects of Atomic Weapons* (removed by Glasstone from future editions, just as he removed the civil defence chapter from the 1977 edition!).

ABOVE: Appendix A of Glasstone's 1950 *Effects of Atomic Weapons* gives a specific calculated example that allows the absorption of blast energy by oscillating modern concrete buildings to be calculated: a reinforced concrete building of 952 metric tons, 75x75ft, 38 ft high (thus horizontal area of 265 square metres), resisting force 4 psi, is subjected to a peak overpressure and dynamic pressure loading of 32 psi (242,000 Pascals) decaying to zero in 0.32 second. Calculated peak deflection of middle of the building was 0.88 foot or 0.27 m (the top would be deflected twice this amount). Reinforced concrete is relatively ductile, but any cracking absorbs even more energy than the simple calculation of the kinetic energy of blast-induced oscillation. So the blast wave energy absorbed from the simple physics law $E = Fx = PAx$ where P is pressure loading, A is exposed area of building being loaded, and x is the displacement(or more precisely from the integral form of this, where energy absorbed is force integrated over displacement, as shown above) is about $E = Fx = (242{,}000)(265)(0.27) = 17{,}000{,}000$ Joules. This energy is removed from the blast wave by being transferred from the blast into the kinetic energy of oscillating the building! Hard fact!

The Effects of Atomic Weapons

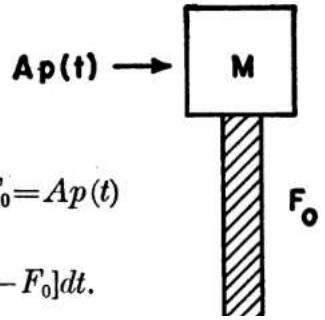
PREPARED FOR AND IN COOPERATION WITH THE U. S. DEPARTMENT OF DEFENSE AND THE U. S. ATOMIC ENERGY COMMISSION



igure 5.3. Behavior of blast wave upon striking cubical structure: (*a*) before striking the structure; (*b*) soon after striking the structure; (*c*) soon after passing the structure; (*d*) wave completely past the structure.

APPENDIX A[1]

AN APPROXIMATE METHOD OF COMPUTING THE DEFORMATION OF A STRUCTURE BY A BLAST WAVE



$$M\frac{d^2x}{dt^2}+F_0=Ap(t)$$

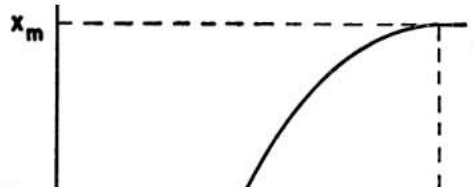
$$v=\frac{1}{M}\int_0^t [Ap(t)-F_0]dt.$$

3.20 In the preceding paragraphs, the discussion has dealt with the air blast from an atomic bomb exploded in an infinite atmosphere. In this section consideration will be given to the influence of the height of burst of the bomb on the area of blast damage. The problem is extremely complex and can be solved only in a statistical or average manner. This is so for two reasons: first, the detailed description of a military target can never be completely given, and second, the complete analytical solution of even such a relatively simple problem as the behavior of a shock wave incident on a wall at an oblique angle has never been obtained for all angles. As will be seen later, a solution of the basic problem of shock reflection from a rigid wall can be derived by a combination of theory and experiment. This solution is, however, not readily adapted to yielding the effect of blast in better than an average sense in a more complicated situation. As to the detailed description of the target, not only are the structures of odd shape, but they have the additional complicating property of not being rigid. This means that they do not merely deflect the shock wave, but they also absorb energy from it at each reflection.

3.21 The removal of energy from the blast in this manner decreases the shock pressure at any given distance from the point of detonation to a value somewhat below that which it would have in the absence of dissipative objects, such as buildings. The presence

[1] This section is based on work by J. von Neumann and F. Reines done at the Los Alamos Scientific Laboratory.

of such dissipation or diffraction makes it necessary to consider somewhat higher values of the pressure than would be required to produce a desired effect if there were only one structure set by itself on a rigid plane.



Glasstone's 1950 Appendix A calculates deflection



Figure A.2. Mass supported on plastic spring equivalent to single-story structure.

Glasstone's 1950 *Effects of Atomic Weapons* explained the basis of blast attenuation clearly.

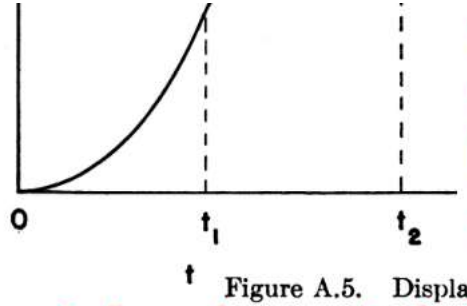
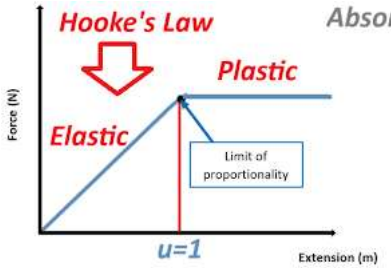


Figure A.5. Displacement of center of mass as function of ti

of building, allowing energy absorbed to be calculated from: $E = \int F\,dx = \int PA\,dx$

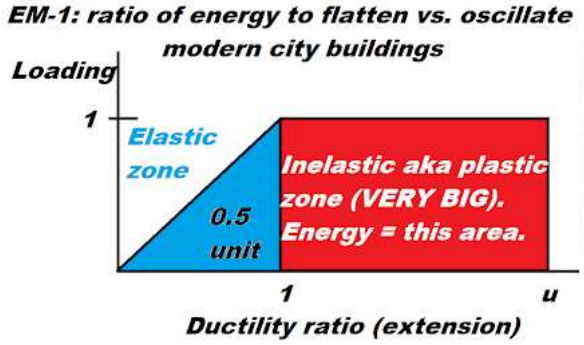
Appendix A then gives a specifical calculated example: a reinforced concrete building of 952 metric tons, 75x75ft, 38 ft high, resisting force 4psi, subjected to a peak overpressure and dynamic pressure loading of 32psi decaying to zero in 0.32 second. Calculated peak deflection of middle of the building was 0.88 foot.



Absorbed energy = area under curve

Hooke's law states that the extension of an elastic object is directly proportional to the force applied to it. This breaks down at the elastic limit, defined in Northrop EM-1 as ductility extension u = 1. (Dimensionless units!)

The ductility ratio, u, equals the extension divided into the maximum extension at the elastic limit



***Total* blast wave energy absorbed by a city building, divided into the blast energy that can be absorbed to merely oscillate (in the elastic zone) a building = blue plus red areas, divided into blue area**

= [0.5 + (u - 1)] / 0.5

= 1 + 2(u - 1)

ABOVE: The resisting force of 4 psi used in the 1950 Glasstone book can be updated with the following static yield resistances for various modern city buildings using Table 15.6 on page 525 of the 1996 *Northrop Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1:* 3.0 psi and 0.3 second natural period of oscillation for 3-8 story reinforced concrete buildings (type 15.2.2), 1.25 psi and 0.3 second for brick houses (type 15.2.3), 0.5 psi and 0.25 second for wooden houses (type 15.2.5), or 2.0 psi and 0.6 second for 3-10 story steel-frame office buildings (type 15.2.10). The "nominal" ductility ratios (the ratios of displacement required for collapse/severe damage to the maximum elastic response before plastic response begins) for these four types of buildings are given by Northrop as 7.5, 4, 7.5 and 10, respectively. **The maximum amount of energy absorbed in destroying the buildings is simply the area under the curve**

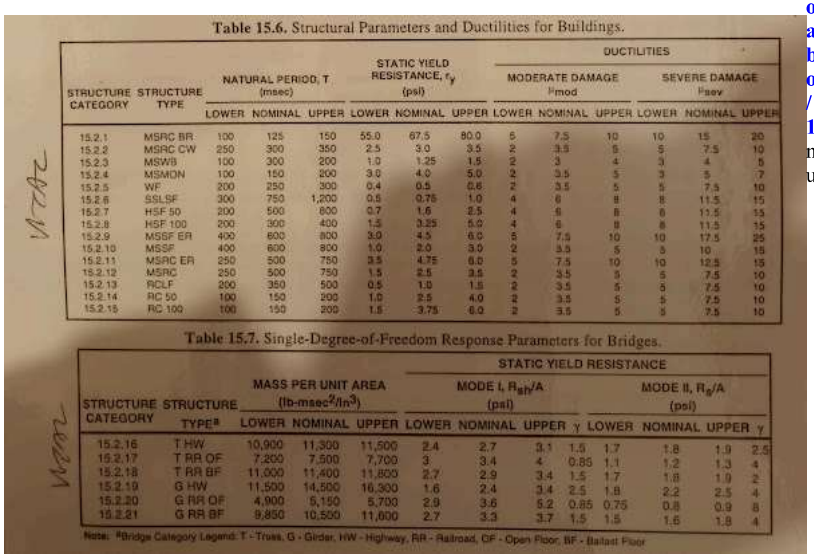


Table 15.6. Structural Parameters and Ductilities for Buildings.

STRUCTURE CATEGORY	STRUCTURE TYPE	NATURAL PERIOD, T (msec)			STATIC YIELD RESISTANCE, r_y (psi)			DUCTILITIES: MODERATE DAMAGE μ_{mod}			DUCTILITIES: SEVERE DAMAGE μ_{sev}		
		LOWER	NOMINAL	UPPER	LOWER	NOMINAL	UPPER	LOWER	NOMINAL	UPPER	LOWER	NOMINAL	UPPER
15.2.1	MSRC BR	100	125	150	55.0	67.5	80.0	5	7.5	10	10	15	20
15.2.2	MSRC CW	250	300	350	2.5	3.0	3.5	2	3.5	5	5	7.5	10
15.2.3	MSWB	100	300	200	1.0	1.25	1.5	2	3	4	3	4	5
15.2.4	MSMON	100	150	200	3.0	4.0	5.0	2	3.5	5	3	5	7
15.2.5	WF	200	250	300	0.4	0.5	0.6	2	3.5	5	5	7.5	10
15.2.6	SSLSF	300	750	1,200	0.5	0.75	1.0	4	6	8	8	11.5	15
15.2.7	HSF 50	200	500	800	0.7	1.5	2.5	4	6	8	8	11.5	15
15.2.8	HSF 100	200	300	400	1.5	3.25	5.0	4	6	8	8	11.5	15
15.2.9	MSSF ER	400	600	800	3.0	4.5	6.0	5	7.5	10	10	17.5	25
15.2.10	MSSF	400	600	800	1.0	2.0	3.0	2	3.5	5	5	10	15
15.2.11	MSRC ER	250	500	750	3.5	4.75	6.0	5	7.5	10	10	12.5	15
15.2.12	MSRC	250	500	750	1.5	2.5	3.5	2	3.5	5	5	7.5	10
15.2.13	RCLF	200	350	500	0.5	1.0	1.5	2	3.5	5	5	7.5	10
15.2.14	RC 50	100	150	200	1.0	2.5	4.0	2	3.5	5	5	7.5	10
15.2.15	RC 100	100	150	200	1.5	3.75	6.0	2	3.5	5	5	7.5	10

Table 15.7. Single-Degree-of-Freedom Response Parameters for Bridges.

STRUCTURE CATEGORY	STRUCTURE TYPE[a]	MASS PER UNIT AREA (lb-msec^2/in^3)			STATIC YIELD RESISTANCE: MODE I, R_{sh}/A (psi)				MODE II, R_s/A (psi)			
		LOWER	NOMINAL	UPPER	LOWER	NOMINAL	UPPER	γ	LOWER	NOMINAL	UPPER	γ
15.2.16	T HW	10,900	11,300	11,500	2.4	2.7	3.1	1.5	1.7	1.8	1.9	2.5
15.2.17	T RR OF	7,200	7,500	7,700	3	3.4	4	0.85	1.1	1.2	1.3	4
15.2.18	T RR BF	11,000	11,400	11,800	2.7	2.9	3.4	1.5	1.7	1.8	1.9	2
15.2.19	G HW	11,500	14,500	16,300	1.6	2.4	3.4	2.5	1.8	2.2	2.5	4
15.2.20	G RR OF	4,900	5,150	5,700	2.9	3.6	5.2	0.85	0.75	0.8	0.9	8
15.2.21	G RR BF	9,850	10,550	11,600	2.7	3.3	3.7	1.5	1.5	1.6	1.8	4

Note: [a]Bridge Category Legend: T - Truss, G - Girder, HW - Highway, RR - Railroad, OF - Open Floor, BF - Ballast Floor

of loading versus displacement before collapse. Since this relative area is 0.5 unit for the triangle shaped slope up to a ductility ratio of 1, and is roughly a constant height rectangle for the plastic zone from a ductility ratio of 1 up to the failure limit (severe damage/collapse of building), the ratio of total energy absorbed by a building in its destruction, to the maximum energy that can be absorbed in purely elastic oscillations by a buildings (up to ductility ratio of 1 unit, where the dimensionless ductility ratio u = maximum extension under applied load / extension at elastic limit of Hooke's Law) is simply [0.5 + (7.5 - 1)]/0.5, [0.5 + (4 - 1)]/0.5, [0.5 + (7.5 - 1)]/0.5, and [0.5 + (10 - 1)]/0.5, or 14, 7, 14, and 19, respectively, for those four building types. It is to be noticed that the greatest amounts of plastic range energy absorption are for the most predominant two kinds of modern city centre buildings, namely reinforced concrete and steel frame multistory buildings. These buildings, with up to 8 and 10 stories, respectively, in these calculations, also have a cumulative effect in shielding free-field thermal and nuclear radiations.

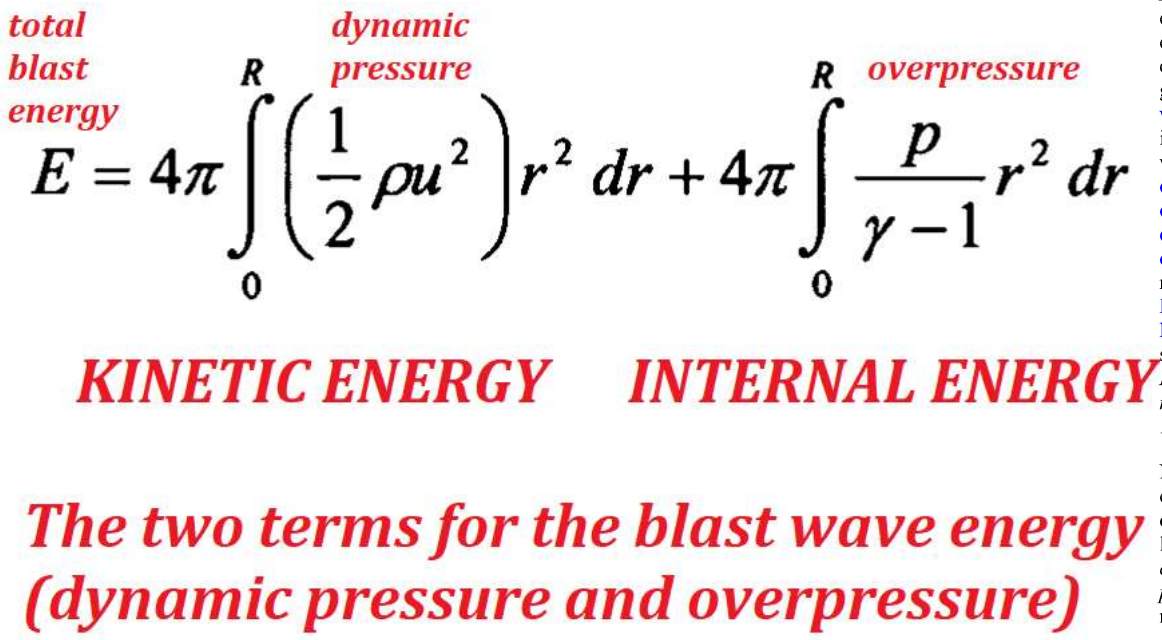
The Effects of Atomic Weapons, 1950, on page 57 has a section written by John von Neumann and Fredrick Reines of Los Alamos (it is attributed to them in a footnote) stating clearly: "*the structures ... have the additional complicating property of not being rigid. This means that they do not merely deflect the shock wave, but they also absorb energy from it at each reflection. The removal of energy from the blast in this manner decreases the shock pressure at any given distance from the point of detonation to a value somewhat below that which it would have been in the absence of dissipative objects, such as buildings.*" Glasstone removed this from future (1957-77) editions, not because it is wrong (it isn't), but apparently because it debunks official nuclear lies used for strategic deterrence in the same way that gas and incendiary bombing effects was exaggerated in the 1930s to try to deter war!

DUCTILITY

3.73 The term ductility refers to the ability of a material or structure to absorb energy inelastically without failure; in other words, the greater the ductility, the greater the resistance to failure. Materials which are brittle have poor ductility and fail easily.

3.76 It is evident that ductility is a desirable property of structural materials required to resist blast. Structural steel and steel reinforcement have this property to a considerable extent. They are able to absorb large amounts of energy, e. g., from a blast wave, without failure and thus reduce the chances of collapse of the structure in which they are used. Steel has the further advantage of a higher yield point (or elastic limit) under dynamic than under static loading.

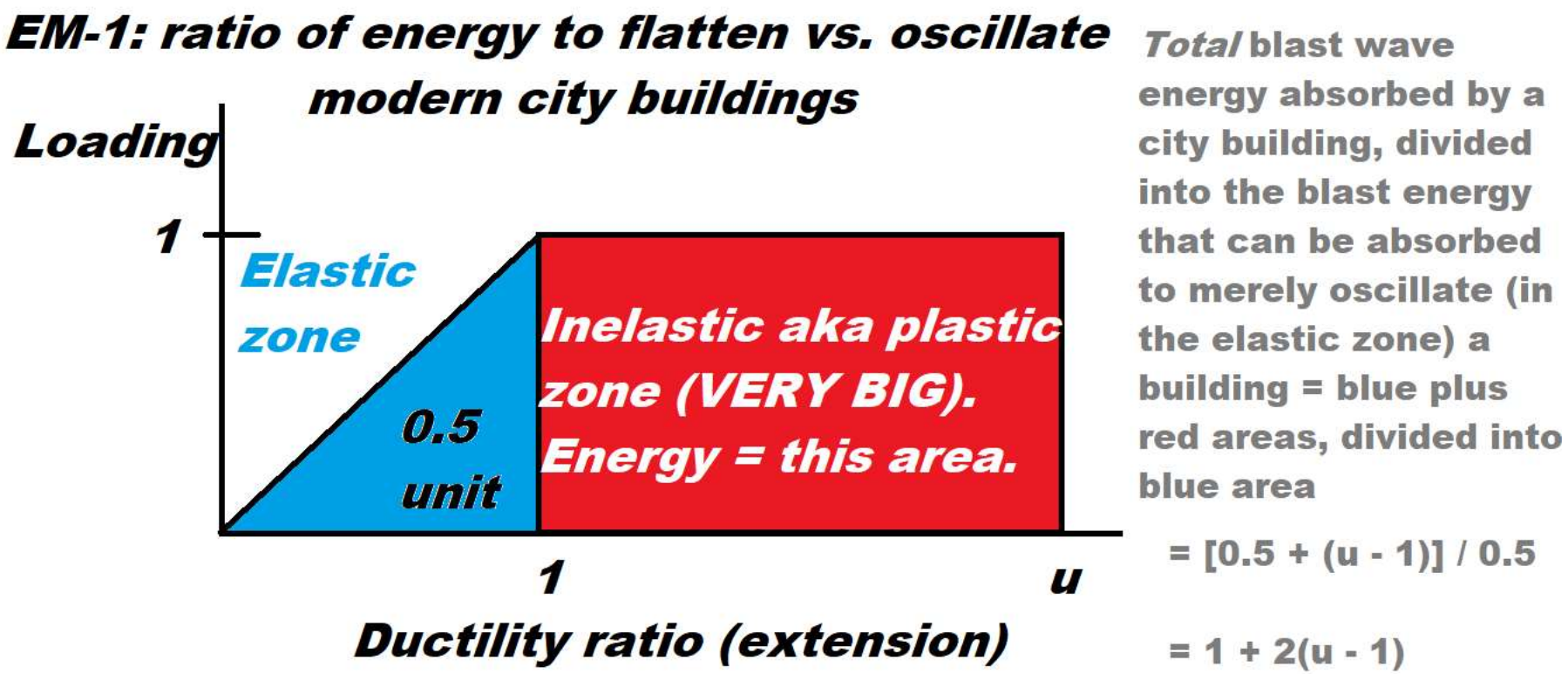
Glasstone 1957: energy absorption in causing damage



ABOVE: The two terms for blast wave energy. It's really very simple: the first term above is the kinetic energy contained in the dynamic (wind) pressure of the blast, while the second term represents the internal energy of the blast (manifested as heat and related static overpressure). So the theoretical basis for the calculation of blast energy absorption by a city is not rocket science, and it's not based on speculations or guesswork. **And this is not "new" either, since Brode's 1954 equations for calculating blast wave's with a computer include energy balance**, and you can with modern computers easily incorporate the irreversible energy losses due to the blast wave successively oscillating, one after another, the buildings with with it interacts as it travels outward in a modern city. **William G. Penney gives the real basis for calculating the energy loss due to blast damage in Hiroshima and Nagasaki in his 1970 paper, which contains numerous detailed, precise calculations and measurements showing how the act of causing destruction to steel and concrete, in addition to the mere oscillations of buildings, reduced the energy content of the blast and thus the pressure fell more quickly with distance in those cities**, than measured in unobstructed desert or ocean during his nuclear testing programme. (In **1985 John Malik of Los Alamos simply ignored in his report, LA-8819, all Penney's hard won facts from Hiroshima and Nagasaki**, without going into details at all. Glasstone and Dolan reference Penney's 1970 paper, but simply ignore its findings on blast attenuation in Hiroshima and Nagasak. So much for scientific progress! *Note also that Penney's 12 kt yield for Hiroshima is lower than the current estimate of 16 kt, implying even more blast absorption in Hiroshima than Penney found, because the unattenuated free field pressures from 16 kt will be greater than those from 12 kt!*)

Now consider the energy absorption in the plastic region for reinforced concrete. The calculations of energy absorption in oscillating a building are for the small "elastic response" region of the pressure-displacement curve. But vast amounts of energy are absorbed beyond that elastic limit, and yet at pressures lower than required to make a reinforced concrete building collapse (*always ignored by ignorant shelter critics, as Lord Baker explained, for shelter design in his 1978 book which we reviewed in detail a few posts back*). There is a summary of the key building parameters America uses in calculating the effects of nuclear blast on buildings of various kinds in Table 15.6 on page 525 of Northrop's 1996 *Handbook of Nuclear Weapon Effects, Calculational Tools Abstracted from EM-1:* building 15.2.2 (3-8 story reinforced concrete, small window area) has a severe damage ductility ratio of 7.5, i.e. it fails and collapses (severe damage) when the displacement is 7.5 times the maximum elastic response. Put another way, the plastic limit for reinforced concrete is 7.5 times the elastic displacement limit. Northrop's figure 15.7 shows the extension versus applied pressure load. The energy absorbed in the elastic limit is a triangle terminating at a displacement of 1 ductility unit (units are extension/elastic limit extension), so it has an area of 0.5 units (energy absorption for oscillating the building, *see **diagram below***). But the plastic response is not a triangle but a unit high rectangle which starts at one unit and extends to 7.5 units (severe damage/collapse), its area is thus 7.5 - 1 = 6.5 units, so it absorbs 6.5/0.5 = 13 times as much energy as that used to oscillate the building elastically! So reinforced concrete buildings can absorb 13 times more energy in being damaged, than they can absorb in oscillating elastically. **The ratio of total energy absorbed to flatten the buildings, to the maximum energy that can be absorbed elastic oscillate it, is (6.5 + 0.5)/0.5 = 14. Thus, the total energy absorption by a building can be 14 times that involved in merely oscillating it!**

ABOVE: model of a building having a blast, the simple engineering graph from EM-1 showing the ratio of energy needed to total a building to that which merely oscillates it. The axes depict loading force and displacement, respectively, so the areas under the curve beautifully correspond to energy absorbed, allowing us to calculate the total energy needed to flatten a city very easily (from a simple, standard physics formula, energy $E = Fx$), in terms of multiples of the energy needed to just oscillate the buildings elastically. Northrop's data for other types of buildings are as follows: type 15.2.5 wood frame house has the same 7.5 ductility ratio for collapse, so it can absorb in plastic deformation 13 times the elastic oscillatory energy; type 15.2.3 brick house has a ductility ratio of 4 for severe damage, and a type 15.2.10 3-10 story steel-frame office building has a ductility ratio of 10 for severe damage. This is precisely Lord Baker's principle of the Morrison table shelter (for details, please see Lord Baker's 1978 book about the problems with explaining this to the bureaucratic nutters who don't understand the physics behind engineering, the brilliantly titled *Enterprise versus Bureaucracy*) where the *plastic deformation of steel is used to absorb many times more energy than it can absorb elastically.* In other words, it's the damage done (plastic deformation of reinforced concrete) that really absorbs vast amounts of blast energy, not the smaller energy absorption from elastic oscillations of a building! Northrop's table 15.6 shows that the reinforced concrete building, type 15.2.2, has a natural period of oscillation of about 0.3 second, and a static yield resistance of about 3 psi. Northrop's Figure 15.10 shows it has 50% probability of severe damage at 2.85 km from a 1 megaton surface burst on an ideal, unobstructed desert surface with no blast energy absorption by buildings intervening between that target and ground zero! For comparison, a similar 1 megaton surface burst in unobstructed desert is shown in Northrop's Figure 15.11 to have 50% probability of destroying a typical British brick house at 4.42 km ground range (50% severe damage probability), whereas Figure 15.18 gives a range of only 2.74 km for collapse of 3-10 story steel-frame buildings from a 1 megaton surface burst on unobstructed, open terrain.

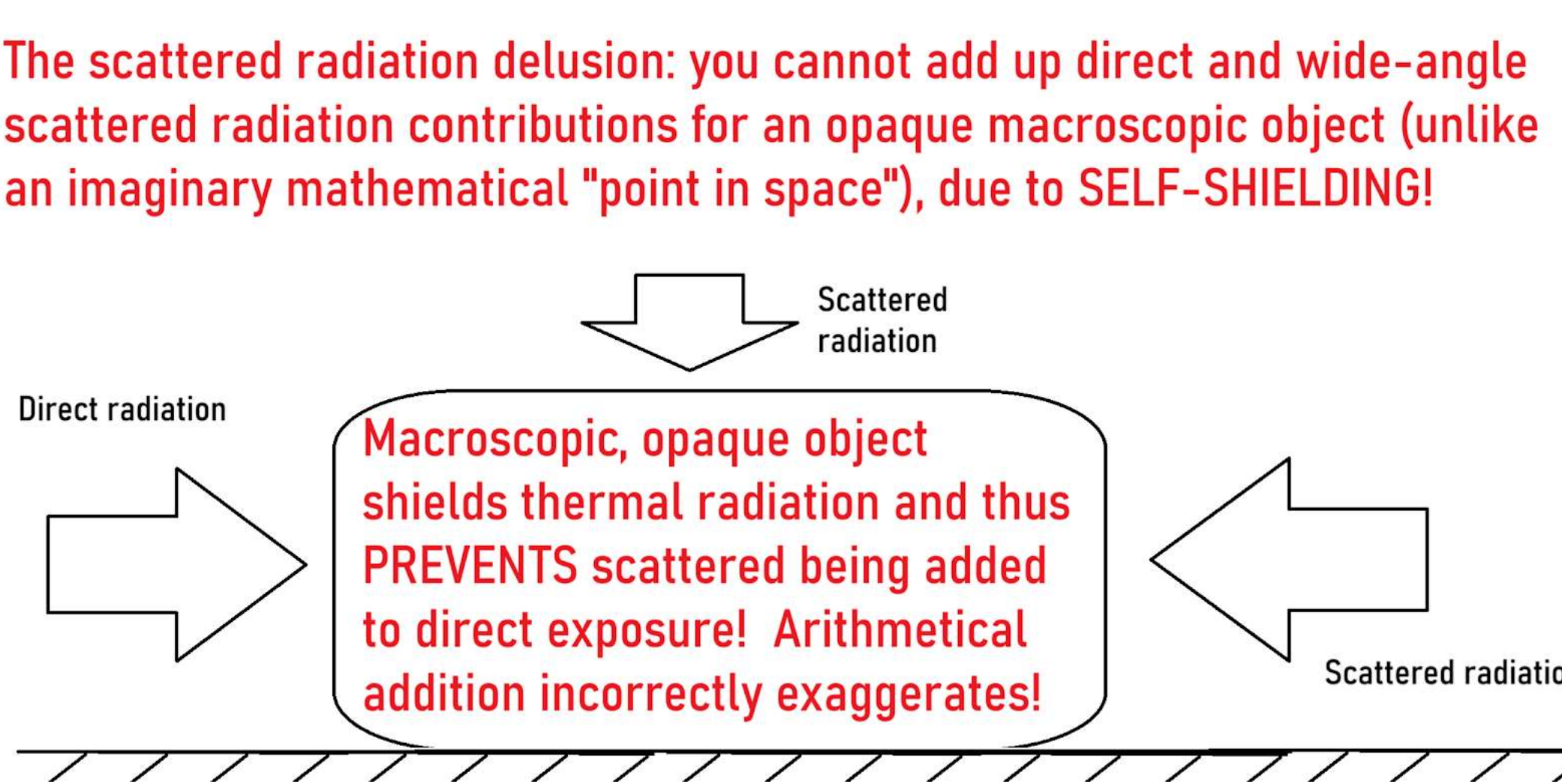


ABOVE: Glasstone and Dolan are also completely wrong in adding scattered radiation to direct radiation exposure, because radiation-absorbing objects by definition self-shield the contributions coming from different directions, so the energy/unit-area "exposures" don't add up in the real world (unlike the "theoretical example" of an imaginary mathematical point in space). For example, if the side of a person facing the fireball receives 10 cal/cm^2 an the other side receives another 10 cal/cm^2 from cloud-scatter or air-scatter, no surface receives 10+10 = 20 cal/cm^2, which is just a mathematical fiction! Instead, scattered radiation generally exposes a larger area to similar or lower exposure than the direct exposure. This is just one of many fictions that have become groupthink religion in anti-nuclear propaganda. We have already given in many posts extensive evidence proving that concrete buildings in Hiroshima and modern cities absorb thermal, nuclear and blast effects in a way totally ignored by Glasstone's unobstructed desert analysis. Strategic nuclear deterrence is thus bunk, if based on nuclear test effects data from unobstructed desert or open ocean. We need tactical nuclear deterrence to stop invasions and the use of force, not an incredible threat of bombs on cities, which is analogous to the gas and incendiary bombing exaggerations of the 1920s and 1930s which failed to deter WWII. The exaggerations were made by both lying disarmers (to scare people into disarmament) and by lying proponents of aerial bombing in war (to scare enemies into surrender). The resulting pseudo "consensus of expert opinion" from both groups had tragic consequences. Strategic bombing, megatons of ~100 kg high explosive on Germany, equivalent to a large nuclear attack however you scale the megatonnage (by the 2/3 power of blast yield for peak overpressure over unobstructed terrain, or by an even weaker function of yield for initial nuclear radiation), also failed to produce military results when civilians were bombed. **The two low yield nuclear weapons dropped over mostly wooden houses in Japan did not produce the results publically claimed (for propaganda) for modern concrete cities.** We've been blogging this for years, ignored by the loons who prefer anti-nuclear lies about strategic nuclear deterrence!

So to correct Glasstone for urban areas:

(1). Simply use **Lord Penney's exponential attenuation formula from Hiroshima to reduce peak overpressures in cities: exp(-R/3.25) for R being radial distance through a city in kilometres**. This reduces peak overpressure by 50% at 2.2 km. (Obviously precise effects depend on details, but this is a "baseline" for minimal blast attenuation, in cities with predominantly wood frame buildings.)

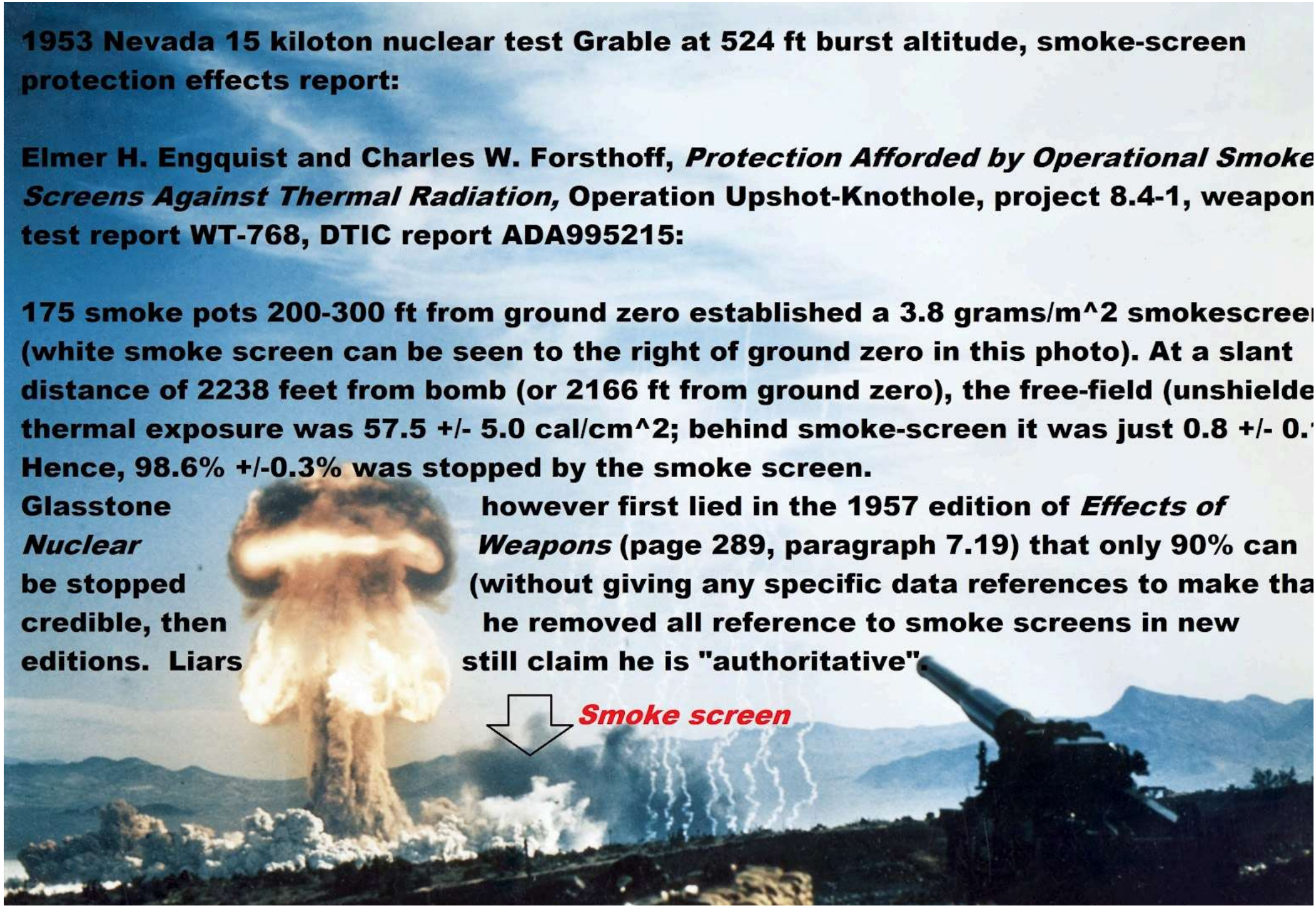
(2). Simply use **George R. Stanbury's formula for predicting the thermal flash shadowing, by calculating the number of exposed upper floors that can geometrically "see" the fireball as a function of range, so that the number of computed flash burns correspond to the number of windows that can see the fireball (e.g. for 50 ft wide streets, 3 miles from a 1 megaton surface burst, only the highest floor can "see" the fireball since the angle from the top of the fireball to building top artificial skyline is 13.5 degrees; if the buildings are on average 10 floors high, the percentage burns and fire risk is therefore 1/10 for one side of a building with 4 sides, i.e. 1/40 which is smaller than the 1/10 assumed by some simplistic propaganda; but you then get into the issue of the size of the windows and whether the people inside are protected by shadows from walls or furnishings or internal office cubicle partitions or even other people in between the target and the fireball in the office, all of which reduce the simplistic "theoretical" estimates of the number of people burned**, instead of assuming that no buildings or screening exists at all as in anti-nuclear propaganda for so-called "arms control" (war via appeasement/disarmament as in the 1930s). Stanbury points out there, and in his August 1962 Restricted UK Home Office Scientific Advisory branch *Fission Fragments* article on *Fires from nuclear weapons*, that to produce firestorms in Germany - the allies tried hard to achieve this in 1943 to end the war (and firestorms produce the associated soot clouds for climatic "nuclear winter" effects hype) you needed 50% of buildings to be initially ignited, which was only possible in the (now burned and gone) medieval wooden areas of Hamburg and **Hiroshima (due to blast-overturned charcoal braziers in wooden houses in Japan, not the thermal flash**

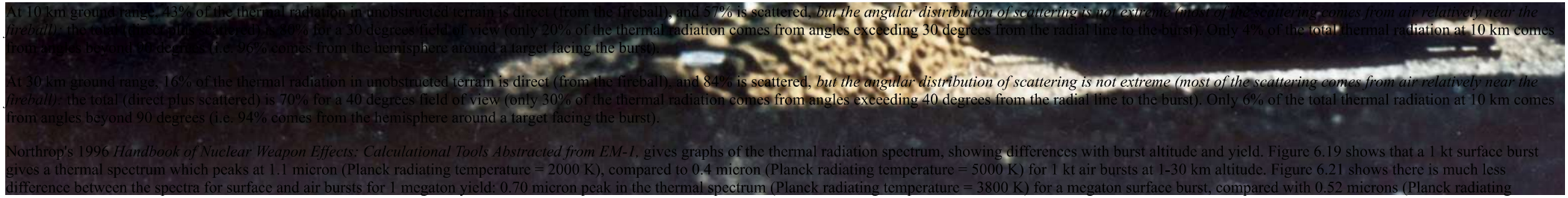


which was obstructed by rooms and other buildings). Stanbury's studies of the thermal flash shielding in Liverpool and Birmingham showed that the thermal radiation is shielded to such an extent you simply can't get to within an order of magnitude of that 50% ignition incidence needed for a Hamburg style intense firestorm (or, therefore, nuclear winter due to Hamburg type firestorm soot clouds penetrating the stratosphere)!

ABOVE: Smokescreens of both white fog smoke and black soot smoke can be seen to the right of the fireball in the 15 kiloton Grable nuclear test, Nevada, 1953. (Smokescreens were again proof tested at Operation Teapot in 1955.) The technology to lay down smokescreens is well-established, and smoke screen generators are fitted to many tanks. The same can be fitted around building windows, preventing fires, firestorms, soot cloud "nuclear winters", simply triggered by early warning radar like air raid sirens before the flash and EMP of an explosion arrive! Glasstone's mention of smokescreens is typical of the many failures of *The Effects of Nuclear Weapons*, failing to make the nuclear test data clear (you cannot even tell from Glasstone whether smokescreens have been analysed in theory or in nuclear tests, let alone the vital details needed for this to be used for civil defense). Part of the problem here is the deceptively non-quantitative treatment of scattered radiation by Glasstone, another exercise in obfuscation.

The effect of scattered thermal radiation diffusing into shadows was insignificant at Hiroshima and Nagasaki, where burns from thermal radiation were only received in an unobstructed radial line from the fireball, so that any shielding provided virtually complete protection from thermal flash. The 110 Castle-3 shot at Bikini Atoll in 1954 was fired during a moderate rainstorm to obtain data on the reduction of blast and thermal effects by rainfall. There are no films that show the fireball because the water content of the air absorbed the thermal and visible transmission. Heavy rain or fog absorbs the thermal radiation locally around the fireball, rather than creating a large amount of dangerously wide-angle scattered radiation at great distances. Northrop's 1996 *Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1,* gives data for Pacific test conditions in Figure 6.39 on page 248, on the effect of scattered thermal radiation from a burst at 1 km altitude, at various distances and for different fields of view:


1953 Nevada 15 kiloton nuclear test Grable at 524 ft burst altitude, smoke-screen protection effects report:
Elmer H. Engquist and Charles W. Forsthoff, *Protection Afforded by Operational Smoke Screens Against Thermal Radiation,* Operation Upshot-Knothole, project 8.4-1, weapon test report WT-768, DTIC report ADA995215:
175 smoke pots 200-300 ft from ground zero established a 3.8 grams/m^2 smokescree (white smoke screen can be seen to the right of ground zero in this photo). At a slant distance of 2238 feet from bomb (or 2166 ft from ground zero), the free-field (unshielde thermal exposure was 57.5 +/- 5.0 cal/cm^2; behind smoke-screen it was just 0.8 +/- 0.
Hence, 98.6% +/-0.3% was stopped by the smoke screen.
Glasstone however first lied in the 1957 edition of *Effects of Nuclear Weapons* (page 289, paragraph 7.19) that only 90% can be stopped (without giving any specific data references to make tha credible, then he removed all reference to smoke screens in new editions. Liars still claim he is "authoritative".
Smoke screen



At 10 km ground range, 43% of the thermal radiation in unobstructed terrain is direct (from the fireball), and 57% is scattered, *but the angular distribution of scattering is not extreme (most of the scattering comes from air relatively near the fireball)*: the total (direct plus scattered) is 80% for a 30 degrees field of view (only 20% of the thermal radiation comes from angles exceeding 30 degrees from the radial line to the burst). Only 4% of the total thermal radiation at 10 km comes from angles beyond 90 degrees (i.e. 96% comes from the hemisphere around a target facing the burst).

At 30 km ground range, 16% of the thermal radiation in unobstructed terrain is direct (from the fireball), and 84% is scattered, *but the angular distribution of scattering is not extreme (most of the scattering comes from air relatively near the fireball)*: the total (direct plus scattered) is 70% for a 40 degrees field of view (only 30% of the thermal radiation comes from angles exceeding 40 degrees from the radial line to the burst). Only 6% of the total thermal radiation at 10 km comes from angles beyond 90 degrees (i.e. 94% comes from the hemisphere around a target facing the burst).

Northrop's 1996 *Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1,* gives graphs of the thermal radiation spectrum, showing differences with burst altitude and yield. Figure 6.19 shows that a 1 kt surface burst gives a thermal spectrum which peaks at 1.1 micron (Planck radiating temperature = 2000 K), compared to 0.4 micron (Planck radiating temperature = 5000 K) for 1 kt air bursts at 1-30 km altitude. Figure 6.21 shows there is much less difference between the spectra for surface and air bursts for 1 megaton yield: 0.70 micron peak in the thermal spectrum (Planck radiating temperature = 3800 K) for a megaton surface burst, compared with 0.52 microns (Planck radiating temperature = 4500 K) for a 30 km altitude megaton burst.

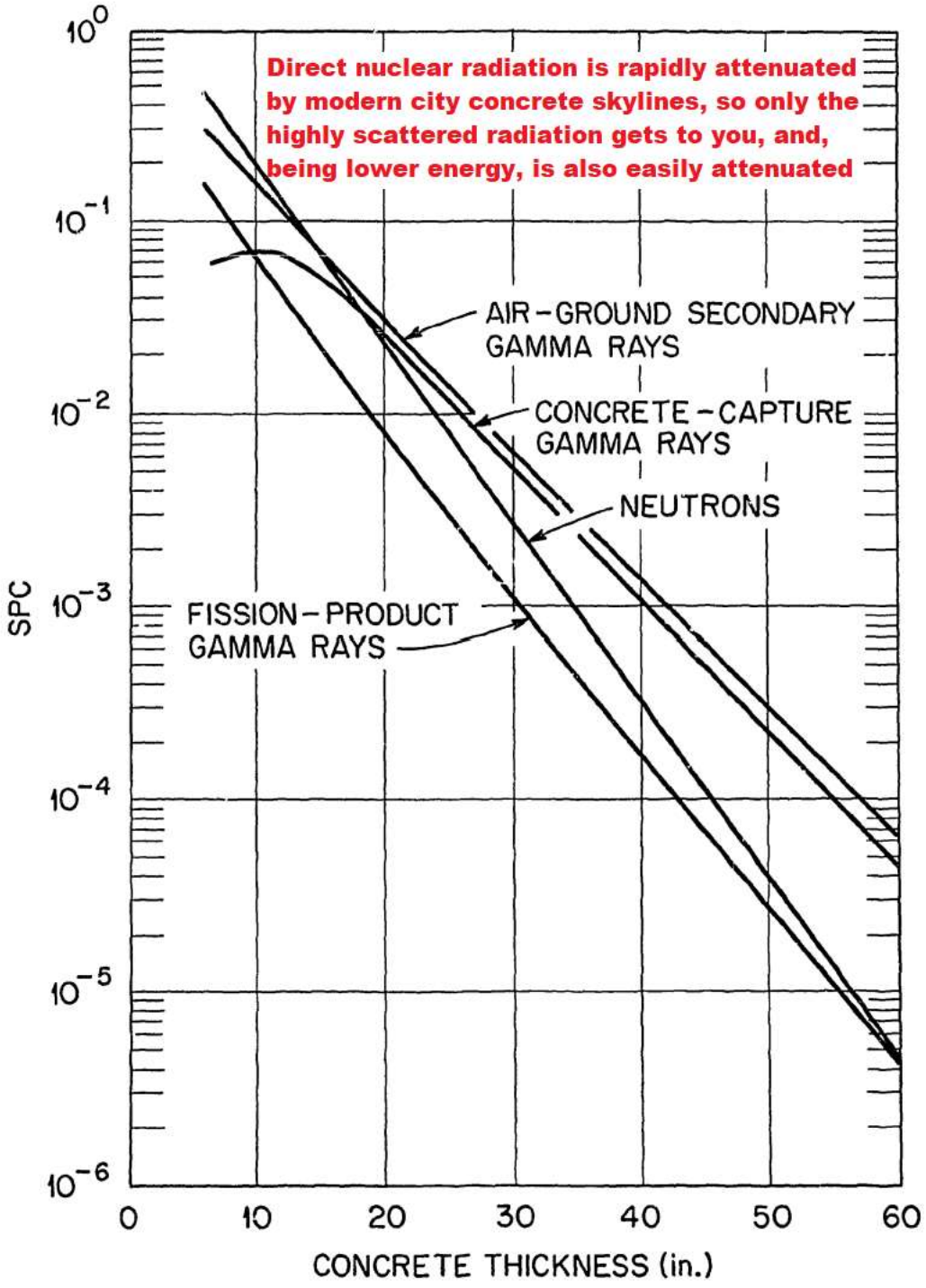
Northrop's 1996 *Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1,* in Figure 16.10 uses hydrodynamic calculations to prove that the maximum fire wind velocity in a firestorm is only a weak function of the fire intensity, for example a fire with a radius of 10 km will create a maximum fire wind velocity of 17 m/s for a fire intensity of 25 kW/m^2, but this only increases to 36 m/s if the fire intensity is increased to 240 kW/m^2.

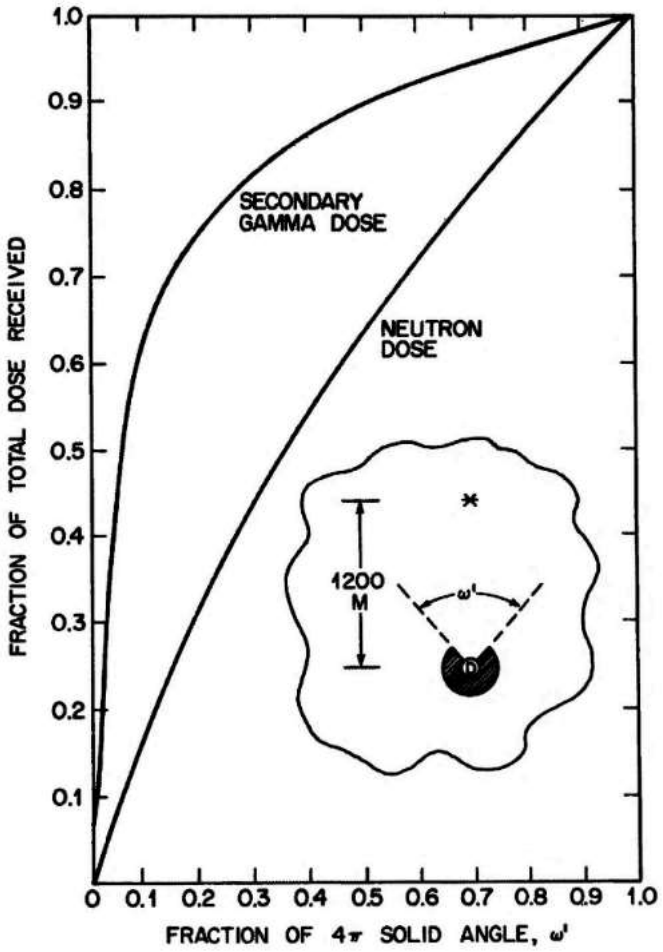
Remember also that nuclear test evidence shows that the risk of clothing or other items burning is less for real levels of office humidity than for target materials left to dry out in the Nevada at the lower humidity of Nevada nuclear tests like Encore; clothing **shields thermal radiation and increases burns energy requirements contrary to Glasstone**.

Northrop's 1996 *Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1,* Table 14.5 on page 501 also points out that while people standing nude 2 metres behind glass windows watching the nuclear blast approach them will receive a 50% median dose of 3 glass fragment abdominal wall penetrations at a peak overpressure of 7 psi, it takes 15 psi if they are wearing clothing! If they duck and cover, they will can avoid the directional flying glass (and the thermal burns) completely. What Northrop doesn't tell you is that in a built up city, the dynamic pressure needed to energise those glass fragments to lethal velocities don't exist 2 metres behind glass windows in general; only behind those windows facing the fireball with an unobstructed view. Other windows on all all sides of the building will certainly break if the overpressure is high enough, but the blast wind (dynamic pressure) is directional and so the windows will not be blasted inwards with the same speed (at lower pressures they can even fail in the negative phase and be sucked outwards, with no hazard whatsoever to occupants!). Northop (1996) in chapter 14 on personnel casualties gives very high mortality rates based on unprotected head impacts, particularly for standing personnel, e.g. 5 psi for 50% mortality for people standing in buildings swept through by blast winds. Again, this assumes the blast winds are not obstructed and attenuated by the other surrounding buildings in a city, but it also suggests a simple civil defense precaution to accompany duck and cover in a crisis situation: bicycle helmets can be kept under emergency table "shelters" and can be put on quickly before the blast arrives, after a nuclear explosion, to minimise head trauma from flying debris or bodily translation and impact for high dynamic pressures and long blast durations. With duck and cover, you can avoid wind drag or injury from flying debris and you can keep away from a blast reflecting surface, then Northop shows in Figures 14.2 and 14.3 that you have 50% chance of surviving 37 psi peak overpressure from 1 megaton if you are lying down perpendicular to the direction of approach of the blast wave, or 62 psi if your are lying parallel to the direction of the blast (i.e., lying down facing away from the flash). In other words, blast is then very survivable!

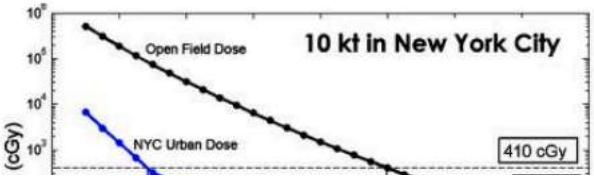
(3). **Simply allow nuclear radiation doses in modern cities to be attenuated severely by a factor of about 100 (from the 2011 Los Alamos report unobstructed desert "free field" initial nuclear radiation dose data study for the shadowing by intervening the buildings of in New York City) - before you include the actual shielding by a building people are in, which is much better for INR than Glasstone claims, because essentially ALL of the urban area outdoor 100-fold reduced radiation dose is SCATTERED, not direct, so it is energy-degraded and not the highest-energy direct gamma and neutrons (which are attenuated severely on the transit through all the buildings in the radial line from the bomb)! Putting in "/100" to the computer formulae is not rocket-science!** Simple. Nothing in the universe is perfect, but this correction is easy, and gives a minimal baseline for realism for the urban effects of nuclear weapons, lacking in all anti-nuclear diatribes. For higher yield weapons, the increased ranges for given radiation doses will lead to increased attenuation, since at increased ranges there will be more concrete buildings intervening in the the radial line from fireball to target, and although scattered radiation builds up at greater distances, it has lower energy than unscattered radiation and therefore is less penetrating (easier to shield). The most penetrating and wide-angle scattered nuclear radiation dose is from neutrons, but for the full range of 13 different nuclear weapon designs in the 1984 EM-1, the effective mean free-path for the surface burst neutron dose over the distance 1-2 km only ranges from 189 to 221 metres (the latter being weapon type 13, the neutron bomb). (The neutron dose will essentially completely arrived - except for a small portion due to delayed neutrons from fission products like bromine-90 - before blast damage occurs to those buildings lcated near the crater.) Glasstone is widely ignored when pointing out in one table in the last chapter - contrary to many free-field charts and graphs - that 50% survival in modern concrete buildings in Hiroshima occurred at 0.12 mile for the 16 kt air burst at 600 m; this scales up by the cube-root scaling law to predict 50% survival at 1.2 miles from a 16 megaton air burst at 6 km altitude; initial radiation dose distances scale as a weaker function of yield than blast.

Additionally, the blast effects data (relating say overpressure to casualties) is way off in left-wing anti-nuclear propaganda. The actual Hiroshima and Nagasaki data proves **much greater survival than bogus theoretical assessments: in reality, 100% people are not nude standing behind windows facing the blast while wearing roller-skates to ensure they are frictionlessly blown straight out of the 42nd floor by a 3psi blast, and killed by the impact from the gravitational fall to the pavement 420 feet below. Instead of the 1979 US Office of technology assessment claim that 50% of people are killed at 5psi, in Hiroshima and Nagasaki more than twice this was needed for the same effect, even without effective duck and cover or taking shelter (CLICK HERE FOR REPORT CONTAINING THE EVIDENCE FOR THIS)**. Although blast duration increases with yield, this has no effect if the pressure is below the threshold for damage, so **Glasstone's curves are wrong for not reverting to cube-root scaling at high yields (impulse rules at low yields, peak pressures rule at high yields; Glasstone ignores this transition in his nonographs for building damage, which is corrected by by the secret EM-1; report Dirkwood Corp report DC-P-1060 found that the blast mortality effect was 50% at 32 psi peak overpressure in modern non-seismic concrete buildings in Hiroshima, or 17 psi for 1 megaton, without duck-and-cover to reduce exposure to flying glass, debris and blast wind drag**; contrasted to **5 psi in anti-nuclear disarmament propaganda lies). By contrast, the low yield 10 kiloton "neutron bomb" effect was even apparent with fission weapons in secret British nuclear testing in 1953 (Totem-1 shot, photos below courtesy of Charles S. Grace):**



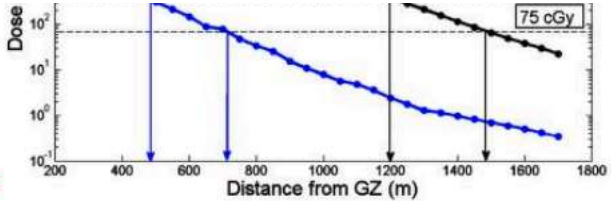


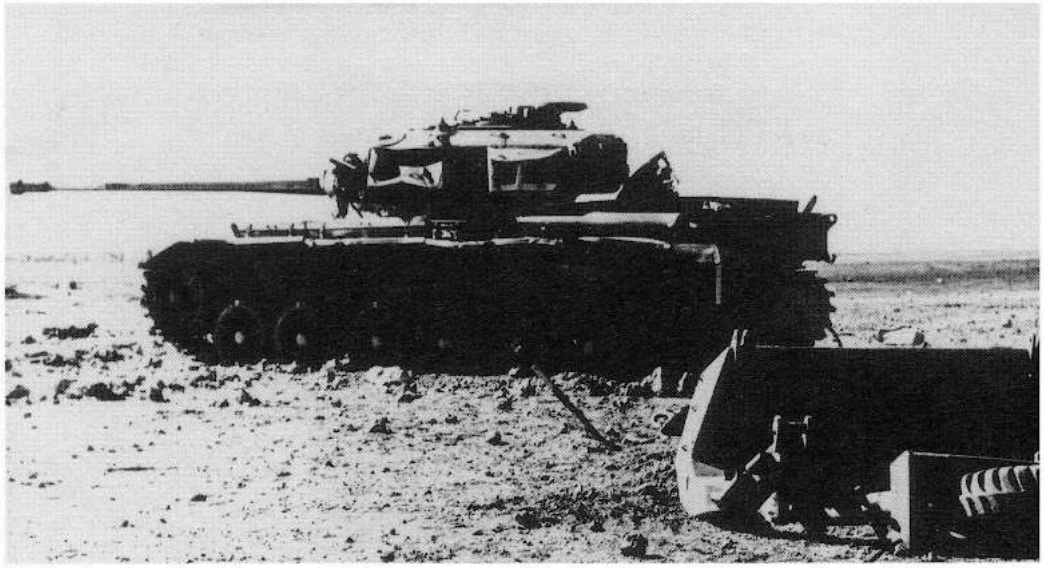
Effect of neutron and gamma ray scattering on the angular distribution of initial radiation dose, 1.2 km from thermonuclear explosion. FROM: J. A. Auxier, et al., *Nuclear Weapons Free-Field Environment Recommended for Initial Radiation Shielding Calculations,* ORNL-TM-3396.



FROM: L. G. Mooney, *Calculations of Weapons Radiation Doses in Single Compartment Above-Ground Concrete Structures,* Radiation Research Associates, Inc., RRA-M93 (November 26, 1969).

RIGHT: K. Millage, *Modelling the Effects of Nuclear Weapons in an Urban Setting,* Applied Research Associates (2011) found 100-fold dose reduction:





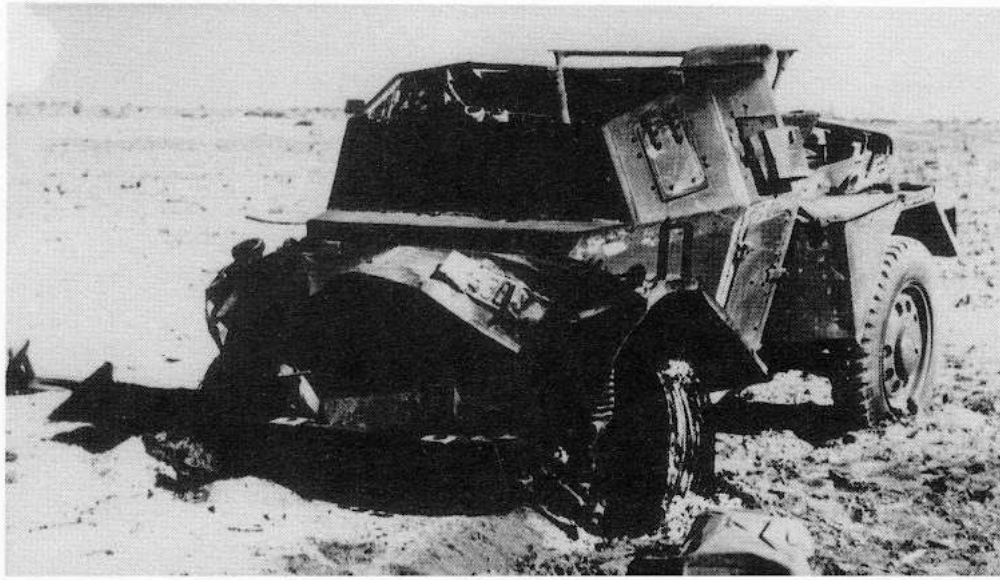


FIG. 5.5 Blast damage to vehicles (*Lt Col A P Farquar*)

58 Nuclear Weapons

Figure 5.5 shows two vehicles which were exposed to a 10-kT burst at a range of 370 m, where the PSO was 230 kPa and the peak blast wind velocity was 330 m/sec (750 mph). The tank, oriented side-on to the blast, was displaced 2.5 m with a peak acceleration of 30 *g*. It suffered moderate damage, principally to external fittings such as track guards and stowage bins, and its monotrailer was destroyed.

After the burst the tank was able to be driven off, and its gun was fired after sand and debris had been removed from the barrel. The lighter scout car was beyond repair. Had crews been in the vehicles they would have received a radiation dose of around 10^5 cGy. We shall see in the next chapter that they would have been incapacitated virtually instantaneously.

Some approximate figures for typical targets are given in Table 5.5. They a for bursts at optimum height, and the ranges are those at which 50 per cent randomly-oriented targets (and orientation is obviously significant) suf moderate damage. That is, they would require workshop repair before furth use.

TABLE 5.5
RANGES FOR BLAST DAMAGE

	1 kT		*1 MT*	
Target	*Range (m)*	*PSO (kPa)*	*Range*	*PSO (kPa)*
tanks	170	275	2,700	150
field artillery	200	200	3,200	120
soft vehicles	300	125	4,800	60
man (prone)	240	160	3,800	100

British Totem-1 (10 kt) nuclear test effects on military field equipment, from Charles S. Grace's Nuclear Weapons: Principles, Effects and Survivability (UK Army).

~~$3.95~~
Review copy

Atomic Weapons In Land Combat

By Colonel G. C. Reinhardt and Lt. Col. W. R. Kintner

This new book, written by two experienced soldiers, explores the problem that today confronts all military men—and citizens. How will atomic weapons affect tactics and strategy? What is the meaning on the battlefield of this almost unknown, untried, mighty power? This is the first book to evaluate the new military weapon on tomorrow's battlefield.

The authors show how the atomic weapon challenges military leaders because it is a tool that demands new and exacting skills. Changes as radical as yesteryear's invention of gunpowder face the leaders of today's armies, who must know how to recognize potential atomic targets and must learn how to set up the correct missions to deal with these targets.

Discussed for the first time are such important topics as the atomic weapon and airborne strategy, offensive and defensive tactics when both sides have atomic weapons, protective measures, medical aspects, the new aspects of the logistical problem, the new casualty rate factor, the demands of individual and unit training, plus an appendix with a wealth of definitions, charts, and tables.

Aware of the challenge presented by the new tool of war, the thoughtful military man and student will welcome this opportunity to study this carefully evaluated discussion of what the atomic weapon really means to the armed forces of today.

Foreword by Lt. Gen. Manton S. Eddy, U. S. Army

Illustrated

THE MILITARY SERVICE PUBLISHING CO.
Harrisburg, Pa.

ABOUT THE AUTHORS

The authors—Colonel G. C. Reinhardt, Corps of Engineers, and Lieutenant Colonel W. R. Kintner, Infantry, U. S. Army—bring to ATOMIC WEAPONS IN LAND COMBAT years of unusual opportunity to study the new weapons. Both recently were instructors in atomic weapons at the Command and General Staff College, Fort Leavenworth, Kansas.

Colonel Reinhardt was commissioned in the Regular Army in 1924 after graduation from Massachusetts Institute of Technology. After service in World War II, he graduated from the Industrial College of the Armed Forces in 1949. He is now on duty with the staff and faculty of The Engineer School, Fort Belvoir, Virginia.

Colonel Kintner, upon graduation from the U. S. Military Academy in 1940, was originally commissioned in the Coast Artillery Corps, later transferring to the Infantry. He is a 1945 graduate of the Command and General Staff School and holds an MA for post-graduate study at Georgetown University in 1948. He is at present serving in Korea.

Their special opportunities to study the problems involved in the use of atomic weapons have enabled these Army officers to produce a book that will stimulate the military student and yet can readily be understood by the field soldier.

You don't need a degree in physics or clearance for high security classification to understand the authors' frank discussion of what atomic weapons can do—to you, and to the enemy.

THE MILI

In 1951, J. R. Oppenheimer and others studied the uses of tactical nuclear weapons to halt the aggressive invasions that triggered both world wars in Project Vista (classified Secret)



Yucca Flats, Nevada: tests on troops in trenches with militar field equipment proved that aft troops have dug-in, its too late

Truck after 31 kt Charlie, 22 Ap 1952, 450 yards from Ground Z

Below, howitzer at 900 yards (same test):



Below: tank 500 yards from ground zero (same test):



Above: **two** radiac meters (handheld AN/T1B ion chamber survey meter and AN/PDR-27 Geiger Set on sling)





Congressional Record

PROCEEDINGS AND DEBATES OF THE 85th CONGRESS, SECOND SESSION

United States Military and Diplomatic Policies—Preparing for the Gap

SPEECH

OF

HON. JOHN F. KENNEDY

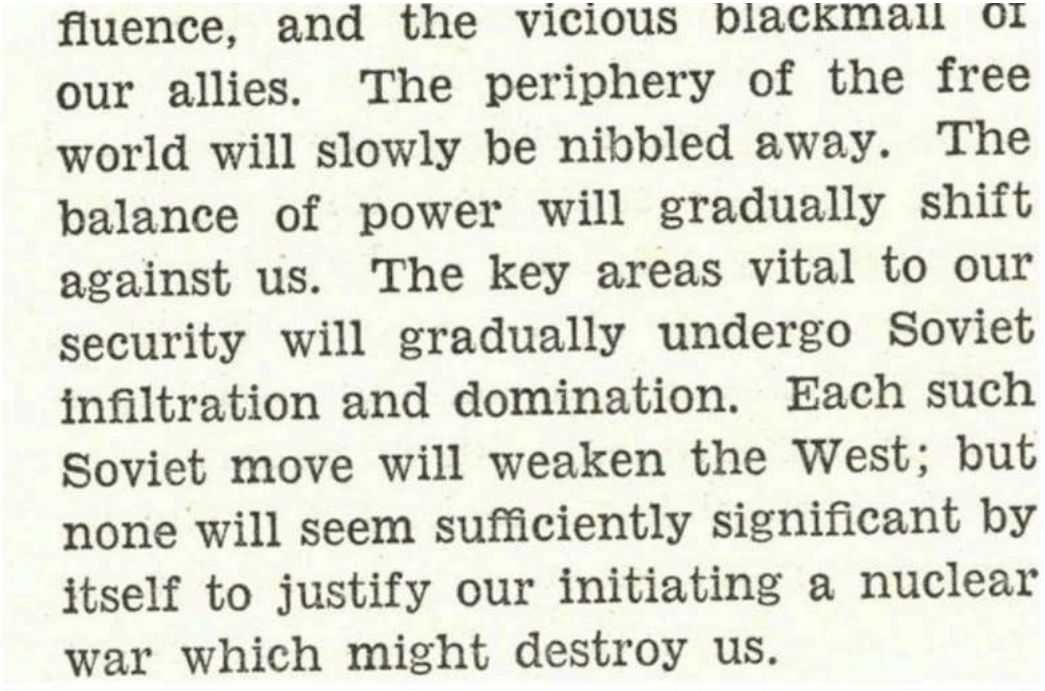
OF MASSACHUSETTS

IN THE SENATE OF THE UNITED STATES

Thursday, August 14, 1958

The time has come for the United States to consider a similar change, if we, too, are to depend on something more than deep convictions and pious motives to guide the state aright. For we, too, are about to lose the power foundation that has long stood behind

In the years of the gap, the Soviets may be expected to use their superior striking ability to achieve their objectives in ways which may not require launching an actual attack. Their missile power will be the shield from behind which they will slowly, but surely, advance—through sputnik diplomacy, limited brushfire wars, indirect nonovert aggression, intimidation and subversion, internal revolution, increased prestige or in-



fluence, and the vicious blackmail of our allies. The periphery of the free world will slowly be nibbled away. The balance of power will gradually shift against us. The key areas vital to our security will gradually undergo Soviet infiltration and domination. Each such Soviet move will weaken the West; but none will seem sufficiently significant by itself to justify our initiating a nuclear war which might destroy us.

ABOVE: "nuclear war" in populist fiction = end of the world. In fact, as shown by President Kennedy's letter to Life magazine readers above, not everybody agrees that "the survivors will envy the dead". As discussed in detail below, during the 1930s "arms control and disarmament" (aka Nazi appeasement and collaboration) lying by knights and lords with Nobel Peace Prizes hanging around their necks repeatedly brainwashed (with great success) the gullible mass media that mustard gas was 360,000,000 times more lethal than it was in 1918 when simple gas masks provided protection (far greater protection is available today with more modern defense equipment than was issued in 1918). The exaggeration factor was a game-changer. Now you get a whole class of mass media liars who say things like "we must lie about nuclear weapons effects to prevent a nuclear war". The problem is, as in the 1930s, lying ends up causing war by undermining credible deterrence! Tell the truth! Kennedy in a 1961 speech on civil defense argued further that civil defense was needed to prevent WWIII due to "escalation" in a nuclear weapon *accident* (or apparent "demonstration" strike). If you ban civil defense and ABM because youre faked nuclear effects model show they can be overcome by a massive attack, then you have no defense against nuclear weapons "accidents" (the "fog of war" propaganda tactic in a major crisis is to use diversionary explosions and ambiguity to reduce chances of retaliation, so first the enemy says "we did not launch attack", then eventually you may get "perhaps someone exceeded their authority or some bomb fired itself", etc., etc., so there is 0% clarity and 0% immediate justification to respond, other than waving a white flag and asking for "peace talks" to "resolve the problem without escalation"). So you need civil defense and ABM to mitigate the consequences of conventional or nuclear LIMITED aka "accidental" (note the quote marks!) demonstration strikes, *to avoid escalating to all-out nuclear war*.

This is 100% diametrically opposed to "arms control and disarmament" (Russian-front) Western anti-civil defense and anti-ABM propaganda spin (Russia itself has both, naturally), which claims that such defenses *reduce rather than increase* the all-out nuclear threshold! We give many examples below disproving this gormless trash. It's based on the concept that ambulances, hospitals, doctors, car seatbelts, fire stations, first aid training etc causes more accidents than otherwise, by causing a "false sense of security and thus reckless conduct". But statistical evidence disproves this kind of gullible confidence trick. For example, the lack of any civil defense or ABM defense in the UK against "Iraq's WMD's" in 2002 did not reduce reckless conduct by the UK, but on the contrary was used to justify preventative war by Tony Blair in a now-notorious government publication called "Iraq's Weapons of Mass Destruction"! This is what always happens when your options are limited. In October 1962, Kennedy decided to evacuate American cities within Russian IRBM range from Cuba, then invade to remove the nuclear threat; he was unable because in 1961 his advisers had cut evacuation planning out of Herman Kahn's civil defense scheme (Kennedy had only implemented the fallout basement shelter identification and stocking part of Kahn's scheme). This was due to claims that evacuation, taking time, would be no use in a surprise Russian attack (Kahn's concept in his book was based on the 1 September 1939 Operation Pied Piper evacuation of vulnerable people - kids, the pregnant, etc. - from London 48 hours before declaring war to reduce risks of a surprise attack, *not evacuating after an enemy surprise attack is detected*). If you can't mitigate "accidental" strikes or "demonstration" strikes, you get sucked into war very easily because even a single enemy detonation can have cause 120 times as many casualties if people are in the open than inside concrete buildings or simple shelters: this is the paucity of alternatives dilemma. There is no CND "ignorance" here; it's DELIBERATE LYING for political ends (supporting the enemy), as explained by Herman Kahn and Bruce-Briggs in their 1972 book *Things to Come*, where they define groupthink anti-nuclear style "*educated incapacity*" as:

"an acquired or learned inability to understand or see a problem, much less a solution ... when a problem or the solution lies outside the accepted framework ..."

For the correct application of Hiroshima's lessons to modern higher yield nuclear war threats from Russia, see for instance the 1970s congressional testimony of T. K. Jones of Boeing Corporation in hearings linked **HERE (February-March 1976 congressional Civil Defense Review)**, and **HERE (November 1976 Nuclear War Survival hearings)**. Whenever the factual evidence surfaces, it is **falsely labelled "controversial" or "wrong" by lying mainstream media charlatans, fraudsters, and bigoted snake oil salesmen, and ignored for political left-wing propaganda purposes, or the "arms controllers" simply tell lies claiming falsely that civil defense is a joke, just as they did in the 1930s (when civilian gas masks were discounted as a simple solution to deter Hitler from dropping his gas bombs on cities for a knockout blow!) and 1970s, debunked by T. K. Jones**' famous 1979 letter to congress, extract below, which led to his being appointed Deputy Under Secretary of Defense for Strategic and Theater Nuclear Forces on June 1, 1981 under the new Reagan Administration, which aimed to win the Cold War by science and technology, not lose freedom via Russian nuclear coercion. Note that while the ACDA - *i.e. the U.S. Arms Control and Disarmament Agency, whose faked nuclear weapons/war effects calculations lay behind the disastrous 1970s nuclear parity SALT farce which now results in dictators again intimidating democracies as was the case in the 1930s due to disarmament scams for "peace" which led to WWII* - claimed 50% of people are killed at 5 psi peak overpressure from a megaton, while in fact U.S. classified Defense Nuclear Agency research showed that Russian public shelters were built to take 150 psi i.e. surviving within the 0.83 mile fireball radius of a 5 megaton surface burst, Russian apartment basement shelters were built to survive 60 psi,



The White House
September 7, 1961

My Fellow Americans:

Nuclear weapons and the possibility of nuclear war are facts of life we cannot ignore today. I do not believe that war can solve any of the problems facing the world today. But the decision is not ours alone.

The government is moving to improve the protection afforded you in your communities through civil defense. We have begun, and will be continuing throughout the next year and a half, a survey of all public buildings with fallout shelter potential, and the marking of those with adequate shelter for 50 persons or more. We are providing fallout shelter in new and in some existing federal buildings. We are stocking these shelters with one week's food and medical supplies and two weeks' water supply for the shelter occupants. In addition, I have recommended to the Congress the establishment of food reserves in centers around the country where they might be needed following an attack. Finally, we are developing improved warning systems which will make it possible to sound attack warning on buzzers right in your homes and places of business.

More comprehensive measures than these lie ahead, but they cannot be brought to completion in the immediate future. In the meantime there is much that you can do to protect yourself—and in doing so strengthen your nation.

I urge you to read and consider seriously the contents of this issue of LIFE. The security of our country and the peace of the world are the objectives of our policy. But in these dangerous days when both these objectives are threatened we must prepare for all eventualities. The ability to survive coupled with the will to do so therefore are essential to our country.

John F. Kennedy

and good Russian improvised expedient shelters built outside cities survived 40 psi in American blast tests and gave upwards of 200 fallout protection factor (i.e., reducing the maximum hotspots of 20,000 rads to a survivable 100 rads and averting casualties).



ACDA disarmament bigots simply lied in the traditional "H. G. Wells" 1930s-sci-fi-style of disarmament fantasy, in testimony to congress, about the motivation and the detailed work of those people who disproved them, they ignored the classified data on blast and fallout shielding in their "effects" models, or their calculations assumed that people failed to use fallout shelters in order to deceptively "reduce" fallout protection factors by a factor of 7, by simply assuming people would go outside to be exposed to unshielded fallout (**like most people, they also massively exaggerated the mean gamma ray energy of fallout during the sheltering period, as we have previously exposed, which is debunked by the measurements after the Redwing Zuni and Tewa tests**) - they also lied that Jones didn't include fallout casualties when in fact he did include fallout correctly, finding that you don't get fallout casualties with the high degree of radiation shielding in shelters, *an exact analogy to the situation where the 100,000 protection factor of activated charcoal gas mask filters gave no gas casualties in 1938 research, and disarmament bigots tried to claim that was some kind of ignorant dismissal of the horrors of true gas war so they would "arbitrarily" assume that only say 50% of people put on gas masks in order to then falsely claim that gas masks were somehow "calculated" to only work for 50% of people - i.e. only those assumed to be actually wearing them! - a travesty and abuse of scientific modelling (like lying that you have done detailed calculations proving that car seat belts make no difference in accidents, when in fact you have merely assumed that nobody wears the seat belts!), when in fact the true excellence of gas mask protection was proved to successfully deter Hitler from using gas on civilians with gas masks, saving millions contrary to the hate attacks on civil defence by disarmament propaganda deceivers (who recognised that civil defence made deterrence credible, and so was a threat to their bigoted plans for peace at any price):*

BOEING AEROSPACE COMPANY
P.O. Box 3999
Seattle, Washington 98124

A Division of The Boeing Company

January 22, 1979

The Honorable William Proxmire
Chairman, Senate Banking Committee
United States Senate
Washington, D.C.

Dear Senator Proxmire:

Your request in recent hearings for an explanation of the discrepancy between our estimates and ACDA's estimates of Soviet losses in a nuclear war is clearly important and warrants a clear and candid answer. Unfortunately, Mr. Spurgeon Keeny, the Deputy Director of ACDA, chose to incorrectly represent our work. I appreciate the opportunity to set the record straight and to point out what we have determined to be the factors contributing significantly to the differences between the two estimates.

Population Protection

In his attempt to discredit our work, Mr. Keeny incorrectly inferred that this work was based on mere "assumptions" and "simple ratios." In fact, our approach was to analytically duplicate the provisions of the Soviet Union's civil defense plans and preparations. This effort was supported by extensive research into Soviet literature, use of rigorous system engineering functional analysis techniques, and a program of testing to establish the effectiveness of Soviet shelters and industrial protection methods. Moreover, the impact of uncertainties and possible imperfections in Soviet execution of their plans were examined parametrically.

Mr. Keeny's statement that we "assumed there would be no casualties from fallout" is false. The record of hearings before the Joint Committee on Defense Production (November 17, 1976) clearly shows that the data presented counted as fatalities all persons receiving a radiation dose of 200 rads or more. Moreover, our more recent studies of which ACDA is aware have treated this value parametrically.

By protecting their people against fallout, the Soviets can substantially limit their population fatalities. Figure 1 shows that even very rudimentary protection, such as basements or expedient shelters, is sufficient to minimize fatalities. In the ACDA analysis, the majority of the evacuees were assumed to have a protection factor of 10 or less, which results in enormously high fatalities compared to what the Soviets could achieve if they carry out even the most modest of the measures outlined in their plans and literature.

Assumption Variables Versus U.S.S.R.
Civil Defense Effectiveness
Degree of Fallout Protection for Evacuees and Rural Population



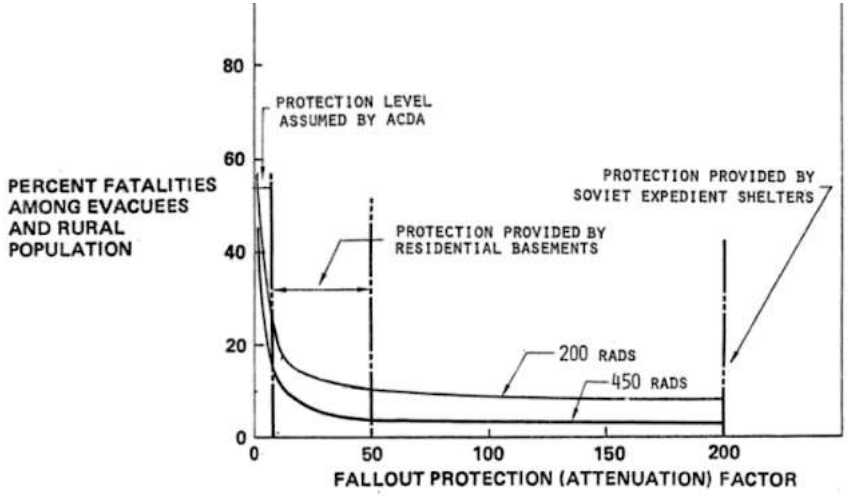


FIGURE 1

Mr. Keeny has incorrectly characterized our treatment of blast protection. In their cities, the Soviets are building industrial shelters and apartment basement shelters with a blast resistance of at least 150 psi and 60 psi, respectively. These ratings were calculated for the Defense Nuclear Agency based on knowledge of construction details such as beam dimensions, concrete quality, and structural reinforcement size and placement. The Soviet designs for expedient shelters have been built and exten-

ABOVE: extracts from the famous 1979 T. K. Jones Boeing Corporation letter, page 2, debunking "arms control" nuclear weapons effects liars in detail. This really exasperated my dad, John B. Cook, who was a Civil Defence Corps instructor in the 1950s, but was old enough to live through the 1930s appeasement era when Philip Noel-Baker repeated lied on the effects of gas bombs, claiming gas masks will never work, because babies and the elderly won't put them on properly, blah, blah, so we must ban evil civil defence and instead guarantee peace by appeasing the Nazis because of we don't, they will DEFINITELY gas us all with a massive gas bomb raid on day 1 of war. In fact, Philip Noel-Baker did this first in a BBC radio speech in 1927, 6 years before Hitler was elected. Family members who knew the truth from gas attacks in WWII - largely negated by simple gas masks and going into shelters for droplets of persistent liquids like mustard agent - had to put up with this lying BBC and other media propaganda for disarmament throughout the 1930s, to the joy of the Nazis who were secretly rearming and preparing for invasions (not necessarily war, since Hitler would have been quite happy to "peacefully" invade the world and then use efficient gas chambers to dispose of those whose race or views he found to be "offensive", like modern snowflakes today). What really irritated dad, however, was that Philip Noel-Baker, having lied about gas effects in his February 1927 BBC radio broadcast and throughout the 1930s to great applause from pacifists who effectively did Hitler's bidding, was made a Lord and a Nobel Peace prize winner for appeasement propaganda lies that led to world war, and then did the same thing all over again during the cold war, issuing nuclear weapons lies. In a 1980 House of Lords debate on Civil Defence, he lied that the air burst in Hiroshima produced lethal fallout: "It covers everything in Hiroshima not already rendered lethal, and so those who have escaped the flash, the blast, the fire, will die within a short time. The first atomic bomb weighed two kilograms. It was little larger than a cricket ball. ... In 1978, more than 2,000 died in Hiroshima from its long-term effects."

Every word here is totally untrue, and easily disproved, but nobody in the House of Lords explained the facts to him, so this he quotes on page 5 of his 1980 Ecology Party book "How to Survive the Nuclear Age", and on page 6 he adds an attack on civil defence: "I feel the same outrage in 1980 when the Home Office [UK Government civil defence] propose to circulate a a copy of a pamphlet entitled *Protect and Survive* to every citizen. ... To strengthen the walls and ceilings as the pamphlet suggests, he needed a garden, a spade, sandbags, and the strength to dig and transport a ton of earth." However, the infirm or elderly don't need to hire an army of helpers to make a fallout shelter, because - contrary to Philip Noel-Baker - you can simply use water from a hose to fill up water filled bags inside boxes which do the shielding, as explained in the Home Office scientific advisory branch *Fission Fragments* magazine article (reprinted in the *Royal Observer Corps Journal,* vol. 27, issue 2, February 1985, page 26, below). In any case, in actual implementation, you would have some organization for civil defence in time of crisis, with people in nighbourhoods helping one another (lending hose pipes, helping to assemble emergency shelters around tables in homes, etc). Noel-Baker ends his case by absurdly calling for disarmament as a "sure way to avoid the war", by again ignoring the lessons of his own 1930s disarmament war effects propaganda which led to appeasement and thus the encouragement of enemy aggression, triggering the Second World War: "This is not a utopian dream. It is the system by which David Lloyd George disarmed Germany in 1919..." ***This claim typifies Noel-Baker's absurd, self-contradictory nonsense, since DLG's 1919 "system" led to another, far worse, world war, not to peace***.

Assumption Variables Versus U.S.S.R. Civil Defense Effectiveness

Distance Evacuated

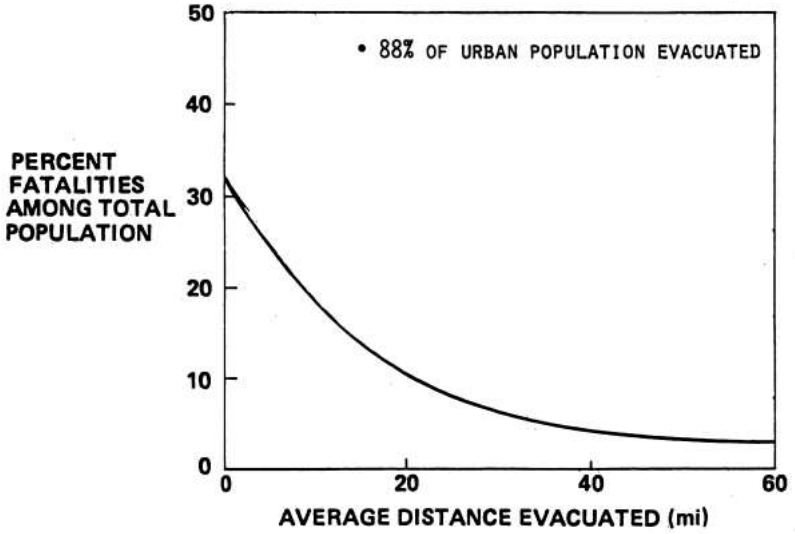


FIGURE 2

Assumption Variables Versus U.S.S.R. Civil Defense Effectiveness

Blast Protection Provided Evacuees and Rural Population

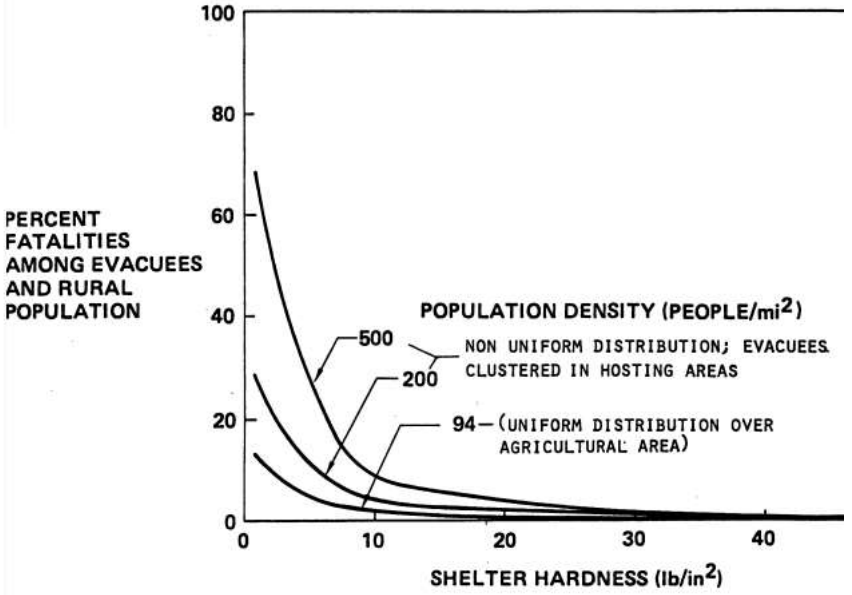


FIGURE 3

As to the reasons why our results differ from those produced by ACDA: ACDA assumed that 30 percent of the Soviet urban population would not be evacuated but that the good quality shelters would accommodate only 10 percent. Thus, 20 percent of the Soviet urban population was assumed unevacuated and inadequately protected, which of course subjects them to massive losses. The Soviet plans, which we endeavored to represent in our analysis, indicates that urban residents not sheltered will be evacuated.

A second difference centers around the way in which the Soviets choose to distribute and provide blast protection for their evacuees. The ACDA analysis assumed that the Soviets would cluster their evacuees in hosting areas, which we estimate could result in some concentrations as high as 500 persons per square mile. The evacuees were assumed to have no blast protection, so fatalities would occur at 3 to 7 psi according to the source used by ACDA. Figure 3 shows that a distribution of 500 persons per square mile and 3 psi fatal blast level results in a fatality level almost 100 times greater than a uniform distribution and blast protection to 15 psi (the minimum provided by Soviet expedient shelters). It is important to remember that it is the Soviet Union and not the United States that controls such factors as evacuation, distribution, and sheltering of the Soviet citizens.

The ACDA study of industrial protection, which I have reviewed, is not a competent work. The hardness levels known to be achievable on industrial components are seriously under-

stated while the difficulty of achieving these levels is overstated. The resiliency of industry in recovering from damage is disregarded. The report's fixation on the capability of one-megaton weapons to damage industry is misleading since the U.S. would be able to deliver few of these weapons against Soviet targets. Moreover, the ACDA study fails to assess the impact of protection on the survival and recovery of the Soviet industrial base as a whole.



T. K. Jones

BOEING

In that 1980 Ecology Party book "How to Survive the nuclear age", there is after the deceptions from Labour Party Lord Noel-Baker, a summary of civil defence shelter advice, but then the book ends with the transcript of the final big speech from Lord Mountbatten to the arms control anti-nuclear propaganda institute SIPRI at Strasbourg on 11 May 1979 (the IRA tragically ended his appeasement campaign with a bomb on his boat off the coast of Sligo, Ireland, on 27 August 1979): "A military confrontation between the nuclear powers could entail the horrifying risk of nuclear warfare [*hardly likely if we have overwhelming superiority for credible deterrence, as we should have had - but did not have - in the 1930s to deter Hitler*]. ... A new world war can hardly fail to involve the all-out use of nuclear weapons [*this is debunked by former NATO General Sir John Hackett's book "The Third World War" which shows how escalation risks will be controlled even in the event of a Russian first-strike on Britain, provided that we are prepared for nuclear war - this book will be discussed in detail later in this blog post, below*]. ... Let us all resolve to take all possible practical steps to ensure that we do not, through our own folly, go over the edge."

FROM: "Royal Observer Corps Journal",
Feb. 1985, page 26

FRAGMENTS

Feb. '85:

UK Home Office "FISSION FRAGMENTS" article, reprinted in Roc Journal V27n

PROTECTION AGAINST RADIATION

A. L. Mather ex-SA, Northumberland

In 'Protect and Survive' a recommendation is made on page 11 para. 2 'Use tables if they are large enough to provide you all with shelter. Surround them and cover them with heavy furniture filled with sand, earth, books or clothing'. Similar shelters are proposed in paras 1 and 3.

Apart from the fact that under certain circumstances of location and weather sufficient soil may not be available, none of the materials suggested for radiation protection is of use to the shelter-bound occupants. The use of survival supplies as a radiation barrier is to be recommended, if not, indeed considered essential. As previously suggested fuel supplies, which have a half value thickness approaching that of soil, could be used in this way. Food supplies should be stacked in boxes as the inner protective barrier together with immediate water supplies. Water has a half value thickness of 200mm compared with 140mm for earth. One therefore has only to create a water barrier 50% greater in width to equate with a soil barrier. The water barrier can be erected in a very short time merely by filling suitable containers by means of a hosepipe. In this way an adequate shelter can be made in a fraction of the time needed for the filling and transportation of sandbags. Further this would provide a strategic supply of water for fire fighting, drinking, washing and for the later survival period during which water supplies may be limited.

Cheap containers would be needed for such a barrier and dustbins, plastic bottles etc would be expensive and inconvenient to store when not required. There is, however, a suitable container

their side) without bursting or collapsing. The bags are very stron and access may be made to them by cutting a sealed plastic tub which is attached to the screw top. Additives would be required t prevent the growth of algae or bacteria.

Not only can one stack these water bricks above and around th shelter but these could also be put on upper and attic floors improve radiation protection in the fall out room. It would als improve fire protection in the upper floor of the building. The cost these bags is low (£592 per 1000 including cardboard box). Doublin the thickness of the box to improve stacking properties wou increase the cost of the box by 50%. No doubt the price could b improved by simplification of design and by mass production.

One weakness of such a system is the susceptibility of the wat bags to rupture by blast damage. Those bags exposed to windows openings should be protected by a suitable tough barrier such a carpets, heavy timber and/or doors.

There would be load limitations on some types of floor and th aspect would need to be discussed with builders before installatio However as the half thickness for water is larger than that for so then the equivalent weight of water would be spread over a larg area of the floor.

The progressive reduction of radiation being received by th shelter will allow the progressive use of water from the radiatic barrier. The empty water bags may be used to store waste liquid

This system would perhaps find its primary application to indo

made by Bowater Scott Ltd (and possibly by other companies) which is used for the conveyance of milk. These are double walled plastic bags of five gallon capacity with screw caps. The bags are supplied flat together with fold flat heavy duty cardboard boxes. When the box is erected and the plastic bag within is filled, it takes the shape of the box and forms a fairly rigid 'brick' of water of dimensions 25 cm × 24 cm × 42 cm. These bricks may be stacked to a height of 4 units (on

shelters but there is no reason why water may not be used supplement barriers in other types of shelter. The containers collapsed form are compact and may be stored in lofts or sheds. an emergency the barrier may be erected and filled by a hosepipe a very short period of time without any great effort. This would be considerable help to elderly or infirm people and, in fact, to mo people with only a short time to construct a shelter.

EXTRACTS

Table B-1. Severe/Moderate Blast Damage Radii for Surface Bursts (metesr)

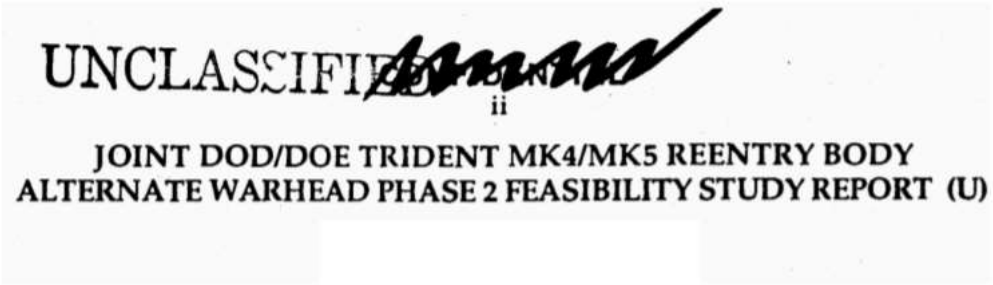
Material classification		ALPHA 0.01	BRAVO 0.05	CHARLIE 0.10	DELTA 0.50	ECHO 1 KT
Field fortifications	Mod	35	55	70	85	125
Earth covered surface shelters	Sev	35	60	65	80	100
Monumental-type multistory wall-bearing bldgs.	Mod	150	210	250	350	575
Multistory, wall-bearing bldgs (apt house type)	Sev	100	165	200	275	400
Multistory, reinforced bldgs (small windown area) Multistory, steel frame office bldgs.	Mod	65	100	130	200	350
Wood frame bldgs.	Sev	140	195	250	350	690

SOURCE: U.S. ARMY FIELD MANUAL "FM 5-26, EMPLOYMENT OF ATOMIC DEMOLITION MUNITIONS (ADM), AUGUST 1971".

PROTECTION (CASUALTY REDUCTION FACTOR) = AREA OF SEVERE DAMAGE FOR HIROSHIMA'S WOOD FRAME BUILDINGS / AREA OF SEVERE DAMAGE FOR EARTH COVERED SURFACE SHELTERS

$= 690^2 / 100^2 = 6.9^2$ ~ 50 FOR A 1 KILOTON SURFACE BURST.

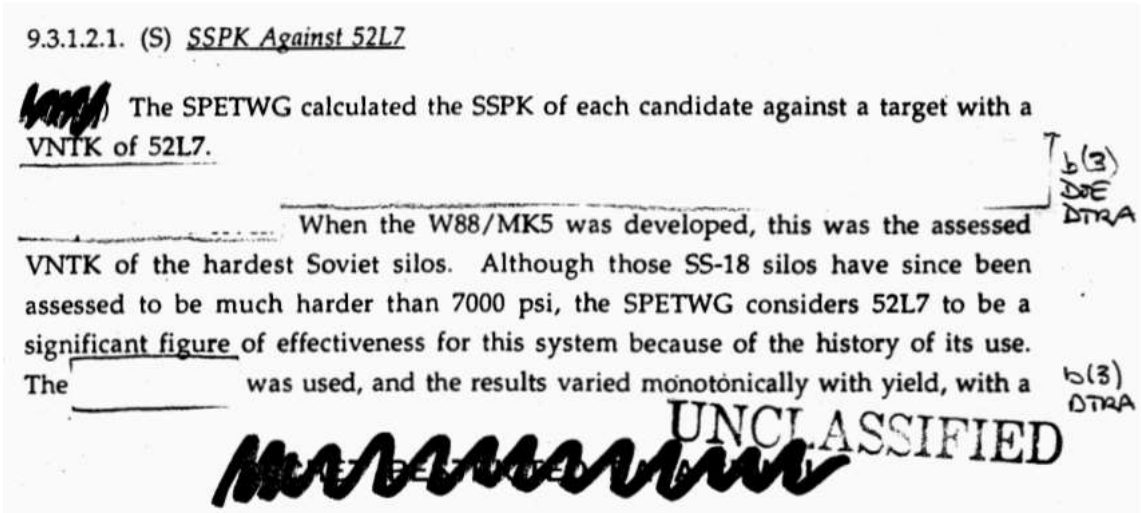
SO MOVING TO EARTH COVERED SHELTERS REDUCES CASUALTIES TO 2%, AND THEY ALSO PROVIDE RADIATION SHIELDING. IN ADDITION, THE "FIRESTORM" AND ITS "SOOT NUCLEAR WINTER" FANTASY, WERE DEBUNKED BY GEORGE R. STANBURY, WHO PLANNED THE GERMAN FIRESTORMS; YOU NEEDED 50% IGNITION OF MEDIEVAL WOODEN HOUSES IN HAMBURG TO START A FIRESTORM, WHEREAS THE SIMPLE FIREBALL SHADOWING OF HIGH-RISE MODERN CITY SKYLINES REDUCES THIS TO 5% OR LESS, PREVENTING FIRESTORMS AND CLIMATIC EFFECTS. THIS IS SUPPRESSED BY THE NUCLEAR EXAGGERATIONS BIAS OF JOURNALISTS.



UNCLASSIFIED

ii

JOINT DOD/DOE TRIDENT MK4/MK5 REENTRY BODY
ALTERNATE WARHEAD PHASE 2 FEASIBILITY STUDY REPORT (U)



9.3.1.2.1. (S) *SSPK Against 52L7*

The SPETWG calculated the SSPK of each candidate against a target with a VNTK of 52L7.

b(3) DoE DTRA

When the W88/MK5 was developed, this was the assessed VNTK of the hardest Soviet silos. Although those SS-18 silos have since been assessed to be much harder than 7000 psi, the SPETWG considers 52L7 to be a significant figure of effectiveness for this system because of the history of its use. The was used, and the results varied monotonically with yield, with a

b(3) DTRA

UNCLASSIFIED

ABOVE: the most advanced and latest American "counterforce" nuclear weapons, the oralloy (Oak Ridge Alloy, aka U235 loaded secondary stage) W88 nuclear warheads were designed to knock out the huge well shock-insulated Russian SS-18 missile silos when they had a physical vulnerability number of 52L7, corresponding to a peak overpressure of 7000 psi, which is well within the crater radius. This is highly relevant today, since ehe SS-18 (in Russian nomenclature: R-36M2) is still in service (like the American W88), and the Russians have 46 of them, each with 10 warheads of 800 kilotons each, i.e. a total of 10x46 = 460 nuclear warheads and 3680 megatons. These 211 ton SS-18s are due to be replaced with the latest 208 ton **Sarmat** (RS-28) missiles (which made its first test flight on 20 April 2022, during the Ukraine war), extending the range from 11,000 km for the SS-18 to 18,000 km for the Sarmat. Unfortunately, as this declassified report shows, as with the Russian civil defense shelters, the silo hardness was underrated and the physical vulnerability is not 52L7 as originally supposed. The SS-18 silos could take much higher peak overpressures than 7000 psi and related ground shock, cratering throwout, etc. (The current "best guess" - and this is not proof tested due to the ban on atmospheric nuclear testing - is that it takes a peak overpressure of 10,000 psi to blow the silo door off the SS-18 silo and wreck the missile, which occurs at a distance from the warhead similar to its inertial gyroscopic CEP targetting error if the accurate GPS satellite navigation system is taken out by high altitude bursts, so to get a high kill probability you need to target many warheads per silo, a hugely inefficient strategy when all the enemy has to do is launch the SS-18 out of the silo before your warheads arrive!) In addition to this underestimate of the hardness of vital military "counterforce" targets in Russia, **the Americans also massively over-estimated the cratering and ground shock effects for high yields in ordinary soils (not easily broken coral reefs!).** (For references, please see the earlier blog posts about cratering exaggerations linked **here** and **here**.) The points we want people to take away, or at least openly investigate and question are:

(1) countervalue (anti-city) effects of nuclear weapons are bunk because, aside from the mistakes and deliberate omissions Glasstone and Dolan made for propaganda purposes in their 1977 edition, if the chips really do go down, you *or your opponent* can simply evacuate cities - most of which self-evacuate at 5pm every weekday, anyhow - evacuation is not a miracle, despite what *Scientific American* or *Bulletin of Atomic Scientists* says - before issuing an ultimatum, *just as the UK did with evacuating kids from London in Operation Pied Piper on 1 September 1939 before issuing an ultimatum and then declaring war 48 hours later*,

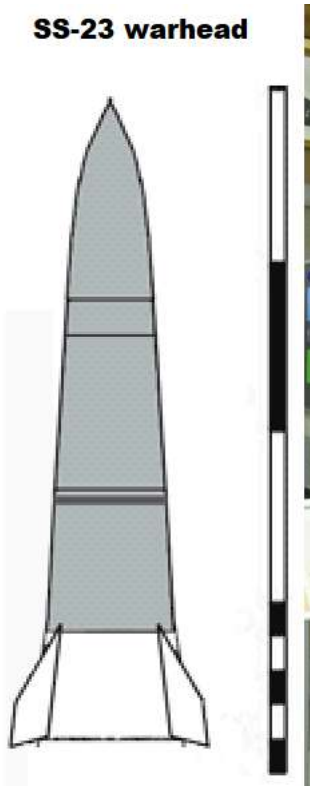
(2) you or your opponent can not only safeguard the civilians in cities by evacuating them (or putting the people into shelters/basements etc if you have them, as the Russians do, and as thankfully the Ukrainians do which is a key reason they have been able to fight the Russian invasion, as a result of having previously been part of the civil defense obsessed USSR), but *100% of missiles in silos can also be safeguarded from destruction by simply firing them out of their silos, if seriously threatened by a counterforce (anti-silo) enemy attack*. In other words, if you decide to credibly target enemy *nuclear weapons* (a very costly strategy in terms of the number of W88 warheads per silo for any significant chance of damaging a >7000psi peak overpressure-requiring SS-18 missile silo, which are about as well protected as the concrete and steel around most nuclear power reactor cores), your targetting policy will encourage the enemy to *launch first, to save their missiles from being taken out!* So using nuclear weapons to target other nuclear weapons in hardened silos (or hidden in the sea in submarines!), apart from being extremely inefficient and costly in terms of your stockpile, is also a policy that *provokes the risk of enemy "launch on warning" crisis instability* because you are, if "successful", *removing the enemy's protected second strike retaliation capability, and once the second strike option is gone, they are pushed back into the old first-strike aka launch-on-warning policy,* which is extremely dangerous if their radar operators mistake some third party's missile testing for a launch against them, etc., etc. So the obsessive "disarmament fantasy" of *only using nuclear weapons to try to deter other nuclear weapons in silos by targeting them,* is a dangerous illusion that provokes crisis instability and risks an accidental nuclear war, in addition to being an exceptionally ineffective deterrent! All you do with that delusion is to deter the enemy from a second-strike policy, and force the enemy into a dangerous first-strike/launch on warning policy! If you can knock out the enemy warheads in their silos, the enemy will *simply ensure that there is a very high probability that their missiles have been launched out of their silos before your warheads arrive, so you will be uselessly destroying EMPTY missiles silos!* (your warheads take 25 minutes to arrive for an ICBM between continents, and 10 minutes for a back door attack of an SLBM launched from a submarine; less time is required for a Russian sub to hit NY or LA because they are beside oceans, unlike Moscow and most Russian targets that are well inland!).

(3) In any case, how do you target enemy SLBMs in submarines hidden at sea? Similarly, the most numerous Russian ICBM in their stockpile is the mobile SS-27 Mod 2/RS-24, of which they have 135 missiles on 16-wheeled mobile launch vehicles which can move around, with 4 separate MIRV nuclear megaton warheads per missile and a range of 11,000 km. How do you target them as they move around during a crisis situation? They can easily move position enough to survive an nuclear warhead in the US stockpile during the 25 minutes while your missiles are on the way to hit them in a crisis situation, so you are literally trying to hit a moving target - do you really believe America will be able to reprogram the target locations for ICBM warheads in flight as they are moving? The whole idea would be amusing if it wasn't so tragic (there was an effort to create a warhead which could track its moving target and adjust its trajectory accordingly, the MARV - Maneuverable Reentry Vehicle - **the only known Western MARV was the Pershing II warhead**, which disarmed as part of the INF treaty to appease Russia/pro-disarmament politicians in the West). *So the whole idea of using nuclear weapons to hit enemy nuclear weapons before they are launched is crazy and dangerous.* It's no joke that all the disarmament propaganda claims falsely that nuclear weapons have only the purpose of targetting other nuclear weapons in silos. That policy is dangerous, because it just encourages the enemy to get the weapons out of their silos before your weapons can arrive, so you are not deterring the enemy to launch their weapons, but forcing them to launch on warning, a lunatic policy! Nuclear weapons are only effective in a counterforce operation against armies on the move, either as a deterrent or to physically stop invasions without collateral damage by air burst enhanced neutron weapons. The only real use of nuclear weapons should be, as Oppenheimer said, as a tactical threat to stop the military invasions and attacks that triggered two world wars.

Nuclear weapons *are* exceptionally good at deterring (or stopping) armies on the move! Not so if they are dispersed in defensive positions like hasty earth covered emergency civil defense shelters that resist 40 psi peak overpressure and give a protection factor of 200 or more against radiation; but the point is that they deter enemy military *offensives* and once the enemy has crossed your border you are within your rights to stop them; the credible threat will *prevent* invasions this way, ending world war. (Nuclear weapons are also effective at destroying enemy nuclear weapons in flight, e.g. the 2 kt W66 neutron warhead in the American Sprint ABM missile could melt down the fissile material in Russian nuclear warheads in

flight in the atmosphere, and the 5 Mt W71 x-ray warhead of the Spartan ABM missile would ablate, deflect and destroy Russian warheads in space; they also knock down trees to create demilitarised zones in jungle warfare which enable easy identification of insurgents entering those zones for attacks.)











There is a compendium of classic 1960s and 1970s arguments for civil defense, and their political suppression by left-wingers and fools, in Nobel Laureate Dr Eugene P. Wigner's *Collected Works, part B, volume VIII*, edited by Jagdish Mehra (Springer, 1998, 258 pages). **Wigner on 28 April 1976 testified before the U.S. Congressional Hearings of the Joint Committee on Defense Production (page 144 in their printed hearings, online version is LINKED HERE) that the new Russian evacuation plans - as shown in its 1969 Civil Defense Manual (translated as ORNL-TR-2306, Oak Ridge National Lab.) - are very effective (the Russian civil defense plan includes only essential workers commuting into cities for 12-hour shifts, and using shelters):**

"Indeed an easy calculation shows that, if the USSR carries out its city evacuation plans, the total number of casualties that all the nuclear weapons in our missiles could cause would be a good deal less than 50% the losses they suffered in World War II. A reasonable estimate, based on the Oak Ridge [National Laboratory] test of a blast resistant 'expedient shelter', described in the USSR civil defense handbooks, gives for the loss which our missile carried nuclear weapons could cause, about 3% of the USSR population. What about our own situation? ... An evacuation plan [costs] $1.2 billion .... a blast resistant shelter system similar to that of China ... would cost around $35 billion."

In 1979, in a joint article with hydrogen bomb advocate Dr Edward Teller in the U.S. Senate Congressional Record (2 August 1979, page S-11490), Wigner points out that Kahn's Type I deterrence is inadequate to prevent war (Type I is also called "mutual assured destruction", if both sides have parity via "arms control" delusions): "... I believe that the so called Mutual Assured Destruction is nonsense, because suppose even if the attacked nation could retaliate, if the other nation pretends that it does not believe it and makes a demand, is there any point in resisting? What good does it do if it can destroy hundreds of thousands of the aggressors' lives ..."

In his 26 May 1964 address to Mercer County NJ Civil Defense organization (reprinted in his Collected Works, part B, Vol. 8, p35 et seq.), Wigner explains that "people who are against Civil Defense often have some element of frustration ... and they find more easily time for, and outlet in, their opposition," as explained by Robert Waelder's article *Protest and Revolution Against Western Societies*, in M.A. Kaplan (ed), The Revolution in World Politics (New York, 1962, p 18), i.e. it is the same as the mechanism for Marxist agitators, some of which are openly Marxist and others pretend to be libertarian while remaining faithful to the bigoted dictators. Wigner's address continues: "Much more literature - I think 80% - is against than for Civil Defense and much of it is completely irresponsible. A few weeks ago I read an article in the Bulletin of the Atomic Scientists in which the author said that a complete *fallout* [cheaper than blast] shelter program would cost $50 billion. Now $50 billion is more than would be spent on the *complete blast* [and fallout] shelter program which I mentioned [$35 billion]. But ... who will contradict it?"

In **Publication 82 of the American Association for the Advancement of Science, *Civil Defense*, 1966, edited by H. Eyring,** Wigner remarks on page 121: "Dr Rapoport said, in a note to the Bulletin of the Atomic Scientists, that it is possible that surrender to Hitler would have led to fewer deaths ... My view is the opposite in this case: I believe that if the West had shown clear resolve and determination from the start, WWII could have been averted."

After **Leon Goure wrote his May 1972 report, "Soviet Civil Defense - urban Evacuation and Dispersal" (Centre for Advanced International Studies, Miami University, DTIC report AD0745136)**, Wigner and J. S. Gailar wrote in their joint article **"Russian Evacuation Plans - the Fears they Create" in the September-October 1974 issue of Survive (v7, n5, pp 4-5):** "If the leadership of the USSR should change and become more aggressive, it would have, under the present circumstances, a terribly tempting option: to stage an evacuation and to provoke a confrontation when this is completed." Wigner later testified to the **U.S. Congressional Hearings of the Joint Committee on Defense Production, *Civil Preparedness and Limited Nuclear War* (28 April 1976, pp 143-7)** that the principal danger: "is the possibility of the USSR evacuating its cities, dispersing their population, and the making demands on us, under the threat of a nuclear attack, approximating those made by Hitler on Czechoslovakia which led to the Munich Pact."

The only reply Wigner received was a nonsense filled 11-page article attacking all these lessons from Russian Civil Defense, headed "Limited Nuclear War" by Sidney D. Drell and Frank von Hippel, and published in the November 1976 issue of Scientific American, the editor of which, Dennis Flanagan, refused to publish Wigner's rebuttal, entitled "We heartily disagree", just as Kahn's rebuttal to the nonsense review of his book on Civil Defense in 1961 had been refused by Scientific American, leading Kahn to expand it into his 1962 book "Thinking about the unthinkable". Wigner's and A. A. Broyles rebuttal to Scientific American was finally published instead as "We heartily disagree" in the Journal of Civil Defense, v10, pp. 4-8, July-August 1977 issue, pointing out that the Russian casualties with civil defense would be 4% on Wigner's unclassified estimate or 2% using T. K. Jones's classified data estimate (utilizing secret data on the survival of foxholes in nuclear tests, in the 1972 DNA-EM-1 Capabilities of Nuclear Weapons), and that the Russian improvised lined, covered trench shelters survive a peak overpressure of 40 psi as well as heat flash and fallout radiation, and adds that contrary to the nonsense in Scientific American, *the Russians did test their plans by evacuating the city of Sevastopol in a drill which led to improvements in their plans*.

H-bomb proponent Edward Teller, Eugene Wigner, and A. A. Broyles in May 1973 had jointly authored the American Security Council report, "Without civil defense we are in a glass house", which basically argues that you can't have a deterrent for world war if you are not prepared to use that deterrent when your bluff is called. *If you are in Chamberlain's position in 1938 or Baldwin's in 1935, you are scared of using the deterrent because it is like "throwing stones in glass houses", because - if you can't shelter people because you refuse to have shelters and you also won't have a plan to evacuate kids from London (Operation Pied Piper, 1939) before you declare war - then you can easily be scared and coerced by Hitler or other dictators, who can see clearly that your "deterrent" is a complete bluff and totally, pathetically useless, because a weapon you can't use is not a credible deterrent. Naturally, as we keep repeating on this blog, this is what the defeatists who love Putin and other dictators want since surrender has two vital steps: (1) get rid of the shield (civil defense) since that makes the sword credible as an alternative to disarmament, and (2) point out that a sword without a shield is an incredible deterrent that is useless, so we had better disarm (and surrender)! Arms control delusions like supposed "parity" (a balance of weapons on both sides, as if democracies need detering like dictatorships), when one side has credible civil defense and the other doesn't, is like a duel between two people, similarly armed, but with one wearing body armour and the other totally unprotected! Not on that, but the dictator is the one wearing the body armour!*

DEBORAH SHAPLEY, SCIENCE, v 194, 10 Dec 1976, issue 4270, pp. 1141-1145:

Soviet Civil Defense: Insiders Argue Whether Strategic Balance is Shaken

An emotionally charged debate, which is now erupting into the public arena, has been raging within the American intelligence community about the Soviet Union's ability to protect its leadership, industry, and population in the event of an all-out nuclear war with the United States.

Some high officials believe that the Soviet Union is becoming so well fortified through its civil defense program that it could survive and recover from a nuclear war. Therefore, they assert, the strategic balance between the two countries, which has governed foreign policy and arms control for over a decade, has been upset.

But this conclusion is hotly contested in some quarters, and one official simply calls it "a joke."

No matter who is right, the controversy seems to be rekindling discussion of whether the United States should step up its civil defense effort.

The evidence that a massive, accelerated civil defense effort is under way in the Soviet Union is hotly disputed, but government officials who believe this is taking place cite the following to support their case:

▶ A gigantic, 7- to 8-million-square-foot factory hidden under a mountain, "west of the Urals and east of Moscow" of which the stacks, blast doors, and service roads are the only visible elements. Others have also been found.

▶ Population shelters near apartment complexes in Moscow, Leningrad, and Kiev. These look like dirt mounds, but they have ventilation panels on top and stairwells on the side.

▶ About 40 underground grain silos whose reserves are replenished periodically to prevent spoilage.

▶ Approximately 30,000 blast-proof and fallout-proof shelters to protect military equipment, troops, and communications. Altunin is said to have 78 generals under him whom American sources can identify by name.

▶ New industrial plants in dispersed locations away from urban centers. The patterns of development follow those outlined in Soviet civil defense manuals. Several underground facilities have also been found, apparently designed to shelter the work force, goods, or machinery.

Within the intelligence community, the Central Intelligence Agency (CIA) is said to be most skeptical of claims that the above findings, and other evidence, add up to a civil defense effort that military strategists and foreign policy-makers need worry about. Opposing this view is the Air Force Intelligence Service, which found some of the new evidence and which adheres to the view that the program is large enough to threaten national security. The Defense Intelligence Agency (DIA), which oversees the intelligence bureaus of the armed services and which is officially responsible for information on Soviet strategic targets, has taken a middle position.

The discussion has spread to Congress, where members and key staffers have received sometimes conflicting briefings, and where emotions are running high, both among those who think the whole argument is ridiculous and those who believe the United States is already Number Two. Calls for a U.S. civil defense effort, and for new strategic weapons have been issued; and the controversy shows every sign of gathering momentum in the coming year. While his boss was being briefed, for example, an aide to one conservative Republican said, with a gleam in his eye, "It was when I realized the Russians were Number One, that I really began to worry."

Several congressmen have been briefed by Thomas K. Jones, a Boeing Aerospace Company employee and former member of the Strategic Arms Limitations Talks (SALT) staff. Jones, with his mod style of dress, plain-spoken manner, and fervent, almost religious belief in the issue, has become a star witness at a number of hearings. He also acknowledges that he is privy to intelligence information on the status of Soviet civil defense. Jones claims that after a nuclear war, 98 percent of the Soviet population would survive and Soviet industry would recover in 2 to 4 years, as compared with industry in the United States, which would take 12 years to recover.

Prominent nongovernment experts have become embroiled in the controversy. Former Navy Secretary Paul H. Nitze, one of the elder deans of the defense community, recently added legitimacy to Jones's claims when, in an article in the January issue of *Foreign Affairs* magazine, he included Jones's calculations of the relative weakness of U.S.



tions. These include approximately 75 hardened underground facilities in the vicinity of Moscow. Bunkers for the Politburo and other elements of the leadership are said to be enclosed in "giant steel spheres."

► An extensive military-run civil defense organization led by General-Colonel A. T. Altunin, an aggressive, relatively young officer, whose rank is equal to that of the heads of the armed forces.

10 DECEMBER 1976



T.K. Jones testifying before the Joint Committee on Defense Production

NOTE: President Reagan recruited T. K. Jones in 1980s. 1141

ABOVE: long-haired scientist **Thomas K. Jones**, better known as T. K. Jones, **(pictured testifying before the Joint Committee on Defense Production, in *Science* magazine, 10 December 1976 after his Congressional Testimony raised the wrath of crackpot Scientific American and Bulletin of Atomic Scientist fans) was the "fall guy" of Reagan's civil defense, doing the explosive tests for Boeing Corporation on Russian civil defense shelter designs and testifing on their consequences for strategic nuclear deterrence - basically debunking strategic nuclear deterrence and McNamara's/Glasstone's totally fake news on urban nuclear weapons effects entirely, since 98% of Russians would survive the US nuclear stockpile when dispersed in shelters** - which inspired Cresson Kearny's Oak Ridge National Laboratory manual, Nuclear War Survival Skills. President Ronald Reagan, prior to his election as US President, was leaked **secret CIA reports on Russian civil defense tests** of shelters and **evidence of their tests of city evacuation plans** for instance by evacuating **Sevastopol** in Crimea and also, in 1975, **Lytkarino** (a suburb of Moscow containing 40,000 people). **A clue to who helped him was shown by Reagan's decision to controversially appoint T. K. Jones as Under-Secretary for Defense for Research and Engineering! A book was then published called *With Enough Shovels: Reagan, Bush and Nuclear War*, ignoring the key scientific evidence entirely, and merely trying to ridicule Reagan's appoinment of T. K. Jones (who is quoted on the front cover), as a left wing Democratic supporting political instrument - like Duncan Campbell's similarly vacuous *War Plan UK***. This was left-politics versus hard science. It often appears to work because Mr Joe Public loves a tall-story fairy tale!

If proof of this is needed, Robert Scheer, a fellow in arms control at Stanford University and the author of *With Enough Shovels: Reagan, Bush and Nuclear War*, became "Truthdig" editor-in-chief, **a propagandarist who claims that ending WWII with nuclear weapons made Truman guilty of "the most atrocious act of terrorism in world history", so he needs to check his facts on the numbers gassed in the Holocaust, or starved in Ukraine by Stalin, unless he denies those deliberate acts of terrorism like the other left wing Holocaust deniers who confuse racism and anti-racism, terrorism and anti-terrorism**. When you actually check the facts: (1) Secretary Stimson (U.S. Secretary of War) knew he has a secret nuclear weapons program of investment of billions of dollars to justify to Congress after WWII ended and didn't want to hold back using the bomb for that reason, so he promoted Hiroshima as being a military target (it did have military bases, particularly at Hiroshima Castle just north of ground Zero, but it was also a highly populated civilian city), (2) **Hiroshima's air raid shelters were unoccupied because Japanese Army officers were having breakfast when B29s were detected far away, says Yoshie Oka, the operator of the Hiroshima air raid sirens on 6 August 1945,** (3) Colonel Tibbets, former bomber of Germany before becoming the Hiroshima pilot as commander of the 509th Composite Group, explains how his pilots and crew were ridiculed heavily for lack of accomplishments, while preparing for weeks on Tinian Island. According to Tibbet's own book *The Tibbets Story* a poem was published before Hiroshima called "Nobody knows" lampooning the 509th's results: "Nobody knows. Into the air the secret rose; Where they're going, nobody knows; Tomorrow they'll return again; But we'll never know where they've been. Don't ask us about results or such; Unless you want to get in Dutch. But take it from one who is sure of the score, the 509th is winning the war. When the other Groups are ready to go; We have a program of the whole damned show; And when Halsey's 5th shells Nippon's shore; Why, shucks, we hear about it the day before. And MacArthur and Doolittle give out in advance; But with this new bunch we haven't a chance; We should have been home a month or more; For the 509th is winning the war." Tibbets was therefore determined create maximum effects after his group had been ridiculed at Tinian Island for not attacking Japan during weeks of preparations on the island, rehearsing the secret nuclear attacks while other B29s were taking flak trying to bomb Japan into surrender with conventional bombs. He writes in *The Tibbets Story* that regular morning flights of small groups of weather and phototographic survey planes that did not make significant attacks over possible nuclear target cities, helped to reduce civil defense readiness in the cities, as well as reducing the air defense risks, since Japan was rationing its use of its limited remaining air defense in 1945.

The November 1976 Scientific American anti-civil defense article claimed that civil defense was discredited since: "In the 1960s the US adopted a strategic policy giving top priority to the prevention of nuclear war through deterrence ...", to which Wigner and Broyles responded to this claim in "We heartily disagree" in the July-August 1977 *Journal of Civil Defense:* "How do you deter an attack unless you convince an enemy that you will fight the war that he is starting?"

Dictators often start wars which their people don't need: the Persian war against the Greeks, Hannibal's war against Rome, the Tartar's invasions of Europe, the Turks' invasion of Hungary, the invasions of Napoleon. You have to accept that aggression is not necessarily a completely rational activity! All that counts for deterrence is that it is credible. If you don't prepare to fight with strategic nuclear weapons, then they are just a pointless bluff, a paper tiger as the Chinese put it, not a credible deterrent. Which is precisely what the disarmers want, of course, since nuclear parity, with the shift away from credible nuclear deterrence to incredible foolery, is only one step away from admitting the uselessness of the strategic nuclear stockpile, disarming and surrendering!



ABOVE: just when Moscow communist backed CND propaganda against Prime Minister "Maggie's" endorsement of President Reagan's nuclear arms race acceleration against Russia and her civil defense "Protect and Survive" and "Domestic Nuclear Shelters Technical Guidance" was peaking in 1982, Argentina decided to illegally seize the Falkland Islands from the UK. The event turned into a test of ultra left wing Labour "pacifist" Tony Benn against his own left wing association, Tribune, with him storming out of the 5 April 1982 meeting after he was booed and jeered for opposing war as impossible against such a large country in South America, claimed Reagan would side with Argentina against the UK, and compared the UK Falklands War Task Force to the Suez crisis of 1956! This is similar to the anti-nuclear gibberish such ill-informed, militarily and diplomatically decrepid fools spout at all times. However, with British citizens under threat by Argentina, such "pacifist" lunacy was rightly ridiculed even by the majority of far left. Pacifists in the UK government continued delusional "peace talks" while the Task Force sailed to South America. The problem with endless peace talks is that against a stronger enemy, it undermines military chances of success, e.g. removing any chance of a surprise counter strike.


Daily Mail 17p

Super Casino Page 30

As Pym goes to F.O. the Premier says: We'll recover those islands

MAGGIE STAKES ALL ON VICTORY

NOP 4 out of 5 want them back

By GORDON GREIG, Political Editor

ON the day Britain's 1982 battle fleet sailed out to sea, Margaret Thatcher staked her shaky Government's survival on getting the Falkland Islands back, whether by diplomacy or force.

Demand that shocked Left-Wing

Don't fight says Benn

Worsened

Out: Carrington yesterday

6 April 1982 news: task force sails


Daily Mail 17p

THE LYNDA LEE-POTTER INTERVIEW PAGE SEVEN

Tory anger as Heath backs Pym's peace push

MAGGIE FIGHTS AGAINST SELL-OUT

Task Force latest

Junta planes ordered: Pick off carriers

By GORDON GREIG, Political Editor

THE Tory Party appears on the brink of a split over the Falklands.

Red Cross flight to freedom

Suspicions

Vulnerable

Convinced

Homeward bound . . . Argentine prisoners of war captured during the British seizure of South Georgia waiting at Ascension Island yesterday for the Red Cross jet which took them to Uruguay for repatriation.

14 May 1982 news: appeasers


Daily Mail 17p

Maggie says crunch will come this we

ONE LAST GO AT PEACE

We've been negotiating now for six weeks. I've looked at six sets of proposals. They have got nowhe

By ROBIN OAKLEY

BRITAIN will have 'one last go' at reaching a peaceful settlement of the Falklands dispute, Mrs Thatcher said last night.

Flying the flag—at last

18 May 1982 news: more talks

ABOVE: the 11 October 1952 cover of *Picture Post* showed clearly the "separation of effects" in an air burst (31 kiloton air burst at 3,440 ft, the Charlie shot of 22 April 1952, Nevada test site), where the fireball cools and forms into toroidal shape (with the radioactivity in the ring) before the "stem" of popcorned dust from the desert is sucked through the middle, before cascading harmlessly around the periphery without mixing with the fission products in the toroidal ring. Despite the visual proof that intense radioactive fallout can be avoided by air bursts, anti-nuclear propaganda helped by Russian fronts continued to raise fallout fears to promote Western arms control and disarmament, leaving the field clear for undeterred Russian conventional invasions and wars.

Professor John J. Mearsheimer, **"The Case for a Ukrainian Nuclear Deterrent", *Foreign Affairs*, Vol. 72, No. 3 (Summer, 1993), pp. 50-66 (FULL ARTICLE LINKED HERE):**

"The conventional wisdom about Ukraine's nuclear weapons is wrong. In fact, as soon as it declared independence, Ukraine should have been quietly encouraged to fashion its own nuclear deterrent. Even now, pressing Ukraine to become a nonnuclear state is a mistake. A nuclear Ukraine makes sense for two reasons. First, it is imperative to maintain peace between Russia and Ukraine. That means ensuring that the Russians, who have a history of bad relations with Ukraine, do not move to reconquer it. ... Ukrainian nuclear weapons are the only reliable deterrent to Russian aggression. ... A conventional war between Russia and Ukraine would entail vast military casualties and the possible murder of many thousands of civilians. Russians and Ukrainians have a history of mutual enmity; this hostility, combined with the intermixing of their populations, raises the possibility that war between them could entail Bosnian style ethnic cleansing and mass murder. This war could produce millions of refugees clamoring at the borders of Western Europe. ... There is also the threat of escalation beyond the borders of Russia and Ukraine. For example, the Russians might decide to reconquer other parts of the former Soviet Union in the midst of a war, or might try to take back some of Eastern Europe. Poland and Belarus might join forces with Russia against Ukraine or gang up with Ukraine to prevent a Russian resurgence. The Germans, Americans or Chinese could get pulled in by their fear of a Russian victory. (Doubters should remember that the United States had no intention of fighting in Europe when war broke out in 1914 and again in 1939.) ...

"Russia has dominated an unwilling and angry Ukraine for more than two centuries, and has attempted to crush Ukraine's sense of self-identity. Recent history witnessed the greatest horrors in this relationship: Stalins government murdered an astounding 12 million Ukrainians during the 1930s. ... A Ukrainian conventional deterrent is not a viable option because Ukraine cannot build an army powerful enough to stop a Russian attack. Ukraine's army might put up dogged resistance,

but it would eventually be defeated. Russia is simply too powerful. ... Conventional military power is significantly more expensive than nuclear military power and requires a larger military; hence it requires far more popular mobilization. ... A security guarantee from the West is theoretically possible but not a practical strategy for maintaining Ukrainian sovereignty. Extending deterrence to Germany during the Cold War was a demanding and expensive job; extending deterrence further east to Ukraine would be even more difficult. ... Vilifying nuclear weapons is a fashionable sport in the West. ... This view of nuclear weapons is simplistic and flies in the face of the inherent logic of nuclear deterrence, as well as the history of the Cold War. In fact, nuclear weapons often diminish international violence, and Ukrainian nuclear weapons would be an effective deterrent against a Russian conventional attack or nuclear blackmail. In the pre-nuclear world of industrialized great powers, there were two world wars between 1900 and 1945 in which some 50 million Europeans died. In the nuclear age, the story is very different. Only some 15,000 Europeans were killed in minor wars between 1945 and 1990, and there was a stable peace between the superpowers that became increasingly robust over time. ... Moreover, there is always the possibility that nuclear weapons might be used inadvertently or accidentally in the course of a conventional war, which provides further incentives for caution."

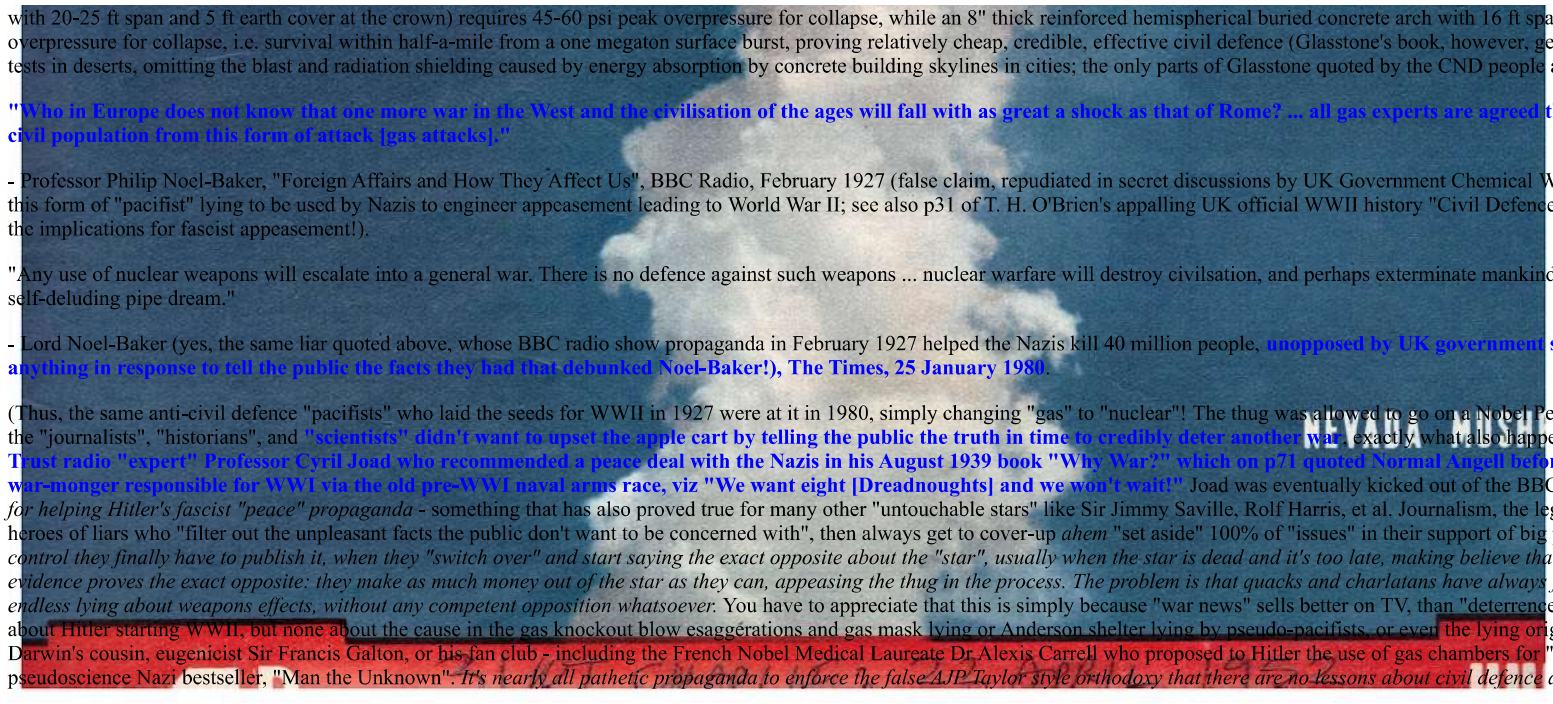
Professor Cyril Joad, "Why War?", Penguin Special book, August 1939, page 71: "*Mr. Churchill and Sir Norman Angell* ... The most convincing comment that I have heard on the whole lunatic business was made at a meeting which I attended as an undergraduate at Oxford in the year before the war. The meeting was addressed by a Cabinet Minister. "There is," he said, "just one way in which you can make your country secure and have peace, and that is to be so much stronger than any prospective enemy that he dare not attack you, and this is, I submit to you, gentlemen, a self-evident proposition." A small man got up at the back of the hall and asked him whether the advice he had just given was the advice he would give to Germany. ... the questioner proceeded to drive home the moral which his question had implied. "Here," he pointed out, "are two nations or groups of nations likely to quarrel. How shall each be secure and keep the peace? Our Cabinet Minister tells us in the profundity of his wisdom, that both will be secure, both will keep the peace when each is stronger than the other. And this, he thinks, is a self-evident proposition." This time there was loud applause. It remains to add that the Cabinet Minister was Winston Churchill, his questioner Sir Norman Angell [author of the 1908 anti-deterrence book, *The Great Illusion* and winner of the 1933 Nobel Peace Prize]."

Notice the point that Angell fails to explain why mutual deterrence won't keep the peace! If any mass-media "nuclear overkill" lies were true and we only needed 0.02 kiloton W54 sized nuclear warheads, we'd have 0.02 kiloton nuclear weapons. The reason why we have higher yields is lying isn't a credible deterrent when the chips go down, and what we



have is a bare minimum to carry out a minimal deterrent function. It's easy to reduce nuclear weapon yields by removing boost gas, secondary stages, etc. The actual problem is the exact opposite of what 100% of quack mass media liars rant: if actually we want to reduce the risk of war including escalation to nuclear war, we need a credible deterrent which we don't have (see facts below). As regards huge stockpiles, this bankrupts the dictatorship as seen in the 1980s. It's a small price to pay, compared to the cost of a world war. Angell simply sneers at mutual deterrence, without (1) saying what's wrong with it, (2) investigating how to make it stable, (3) explaining why there's something wrong with "Si vis Pacem, para Bellum". Herman Kahn in his 1960 On Thermonuclear War discovered these pseudo-pacifists were key to starting WWII by duping the public with the illusion of security through disarmament (using itallics to emphasise this point!). What's actually needed, Kahn showed is credible deterrence including civil defence in order to reduce collateral damage such as radiation exposure to civilians (this is discussed in detail below, with quotations from Kahn's various books). This quotation of Angell versus Churchill in a 1913 deterrence debate is important because Churchill's pre-WWI naval Dreadnought deterrence ("We need eight, and we won't wait!") proved an incredible deterrent against the invasion of Belgium in 1914 which triggered WWI! So deterrence must be credible against the spectrum of provocations that result in wars, not just against a subset of the spectrum of possible provocations!

But Churchill's so-called "brilliant oratory" during the 1930s again failed to sway public opinion early enough to credible deter the Nazis from invading Poland in 1939 and triggering WWII. He failed to defeat the anti-deterrence movement led by Norman Angell and Philip Noel-Baker. So there are important lessons to learn here. In the end, the "anti-war movement" - which had become by 1939 a Nazi Fifth Column in the UK - had to be forceably shut down (with oppressive press censorship) once war broke out, as enemy collaboration or defeatism. However, they re-started again in 1945 when wartime censorship was lifted, and were never debunked by scientists, historians or journalists who could see the dangers from attacking them, i.e. the fascist mentality of such self-righteous lying quacks and charlatans, which were identical to the pseudo-scientist mindsets of Nazi eugenics pseudoscience and Marxism pseudoscience. The anti-nuclear quacks immediately focussed on nuclear weapons radiation, just as they had focussed on gas fear-mongering in the 1920s and 1930s! The journalists, historians and scientists who should have called out the liars instead backed anti-nuclear liars, instead of repudiating them and using nuclear weapons to deter war! Historians like AJP Taylor were accused by Herman Kahn of fiddling their analysis of Hitler and war origins, simply in order to "justify" a delusional anti-nuclear agenda (e.g., AJP Taylor was a founder of unilateral nuclear disarmament organisation "CND"!). There is still a taboo on mentioning the fact that Glasstone's and Dolan's 1977 *Effects of Nuclear Weapons* states in Table 5.160 that a large cheap WWII Anderson shelter (light 10-gage corrugated steel hemispherical arch



with 20-25 ft span and 5 ft earth cover at the crown) requires 45-60 psi peak overpressure for collapse, while an 8" thick reinforced hemispherical buried concrete arch with 16 ft span and 4 ft earth cover at the crown requires 220-280 psi peak overpressure for collapse, i.e. survival within half-a-mile from a one megaton surface burst, proving relatively cheap, credible, effective civil defence (Glasstone's book, however, generally is misleading "free field" effects data from nuclear tests in deserts, omitting the blast and radiation shielding caused by energy absorption by concrete building skylines in cities; the only parts of Glasstone quoted by the CND people are the falsehoods; the media let them get away with it!).

"Who in Europe does not know that one more war in the West and the civilisation of the ages will fall with as great a shock as that of Rome? ... all gas experts are agreed that it would be impossible to devise means to protect the civil population from this form of attack [gas attacks]."

- Professor Philip Noel-Baker, "Foreign Affairs and How They Affect Us", BBC Radio, February 1927 (false claim, repudiated in secret discussions by UK Government Chemical Warfare Research Department, but not in public, thus enabling this form of "pacifist" lying to be used by Nazis to engineer appeasement leading to World War II; see also p31 of T. H. O'Brien's appalling UK official WWII history "Civil Defence" which dumbly mentions this episode without following up the implications for fascist appeasement!).

"Any use of nuclear weapons will escalate into a general war. There is no defence against such weapons ... nuclear warfare will destroy civilsation, and perhaps exterminate mankind. To hope for salvation from Civil Defence is a dangerous self-deluding pipe dream."

- Lord Noel-Baker (yes, the same liar quoted above, whose BBC radio show propaganda in February 1927 helped the Nazis kill 40 million people, **unopposed by UK government secrecy obsessed "expert" thugs who refused to say anything in response to tell the public the facts they had that debunked Noel-Baker!), The Times, 25 January 1980.**

(Thus, the same anti-civil defence "pacifists" who laid the seeds for WWII in 1927 were at it in 1980, simply changing "gas" to "nuclear"! The thug was allowed to go on a Nobel Peace Prize winning anti-civil defence lying crusade because the "journalists", "historians", and **"scientists" didn't want to upset the apple cart by telling the public the truth in time to credibly deter another war**, exactly what also happened with **lying war-mongering appeaser and BBC Brains Trust radio "expert" Professor Cyril Joad who recommended a peace deal with the Nazis in his August 1939 book "Why War?" which on p71 quoted Normal Angell before WWI allegedly "debunking" Winston Churchill as a war-monger responsible for WWI via the old pre-WWI naval arms race, viz "We want eight [Dreadnoughts] and we won't wait!"** Joad was eventually kicked out of the BBC *for being convicted of dodging his rail fare, not kicked out for helping Hitler's fascist "peace" propaganda* - something that has also proved true for many other "untouchable stars" like Sir Jimmy Saville, Rolf Harris, et al. Journalism, the legal profession, scientific principles, etc., having first made heroes of liars who "filter out the unpleasant facts the public don't want to be concerned with", then always get to cover-up *ahem* "set aside" 100% of "issues" in their support of big pseudo-pacifist "star" liars, *until the problem is so out of control they finally have to publish it, when they "switch over" and start saying the exact opposite about the "star", usually when the star is dead and it's too late, making believe that they did their best to oppose the liars, when in fact the evidence proves the exact opposite: they make as much money out of the star as they can, appeasing the thug in the process. The problem is that quacks and charlatans have always filled the BBC and other mass media outlets and pumped out endless lying about weapons effects, without any competent opposition whatsoever.* You have to appreciate that this is simply because "war news" sells better on TV, than "deterrence evidence"! So today you have endless TV "history" shows about Hitler starting WWII, but none about the cause in the gas knockout blow esaggérations and gas mask lying or Anderson shelter lying by pseudo-pacifists, or even the lying origins of Hitler's eugenics in British pseudo-scientists like Darwin's cousin, eugenicist Sir Francis Galton, or his fan club - including the French Nobel Medical Laureate Dr Alexis Carrell who proposed to Hitler the use of gas chambers for "peaceful" mass murder of "state enemies" in his eugenics pseudoscience Nazi bestseller, "Man the Unknown". *It's nearly all pathetic propaganda to enforce the false AJP Taylor style orthodoxy that there are no lessons about civil defence and pseudoscience lying from "expert conssensus" to be learned to ensure peace!*)

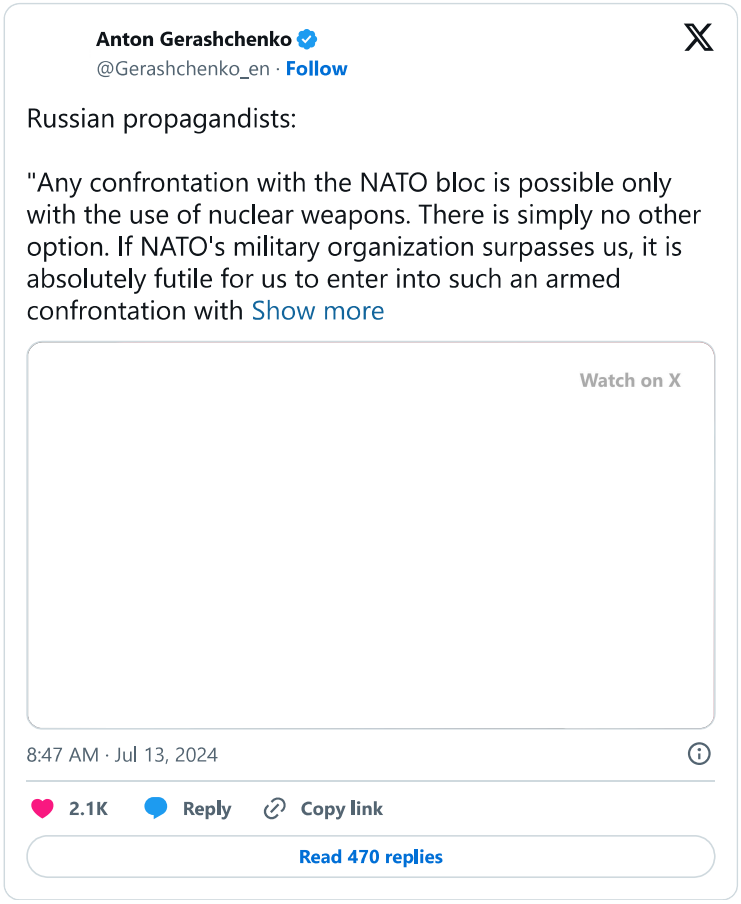
Prof. P. J. Noel Baker: "Foreign Affairs and How They Affect Us - How Nations Settle Their Quarrels" BBC radio 7pm Tue 15th Feb 1927, Radio Times program advert: "At any period in history between the fall of the old Roman Empire and the present century, there was only one answer to the question, 'How do nations settle their quarrels?' It was by war or the threat of war. Now, in the League of Nations, the world has a tribunal before which such quarrels can be judged from the point of view of right rather than might. It would be useless to pretend that the Council of the League is a purely judicial body untouched by political considerations, but at least it contains in every case enough disinterested opinion to ensure that the moral view gets representation, and the sanction behind its decisions is international opinion, and not merely the big battalions of any one Power or group of Powers. Professor Noel Baker was one of the British delegation in Paris when the League was established, and he worked for several years subsequently in the League Secretariat, so he is qualified to speak with knowledge of both the ideal and the actual character of the League."

Eventually - far too late to help deter a war - **in 1938, when the war threat induced appeasement and coercion situation was way out of control, some scientists began popular books debunking gas knockout blow liars, but all in a very weak, very gentle way that has been widely ignored. For example, Professor Kendall FRS wrote *Breathe Freely! The Truth about Poison Gas* which contained key facts but was poorly organized, like Herman Kahn's 1960 *On Thermonuclear War*. Kendall pointed out on page 52 that with proper defences (gas masks and training) in 1918 it took 4,000 tons of German mustard gas to kill 540 British troops: "Gas defence had progressed to the point where it took nearly 8 tons of mustard gas to kill a single man [with modern NBC clothing and modern respirators etc, even fewer casualties would occur]," and on page 110 he points out that popular mass media gas-knockout-blow hysteria "loved to quote the fact that 1 ton of mustard gas is sufficient to kill 45,000,000 people". If you compare the truth, 1/8 killed per ton with simple 1918 gas masks to 45,000,000 per ton killed in propaganda (for no protection), the exaggeration factor by the mass media was 45,000,000/(1/8) = 360,000,000. *This 360,000,000 protection factor is so large that it makes civil defense into a game changer.* In other words, giving out gas masks totally eliminates the naive toxicity "overkill" exaggerations at the basis of anti-deterrence propaganda that leads to virtue-signalling disarmament propaganda spin, and thus war.** Very large reductions occur with civil defence in nuclear warfare, when you properly take account of city skyline blast and radiation absorption and the actual protection afforded by low cost modern concrete buildings and dual-use underground car park basement shelters. The point is, the 1920s and 1930s lying opposition to WMD deterrence made credible by civil defence against "limited/accidental attacks" etc, by "internationalists" aka appeasers/defeatists, is central to the entire problem of foreign affairs and maintaining a peaceful world. By lying about gas/nuclear knockout blows, you get a Nobel Peace Prize for removing credible deterrence and allowing the invasions that set off major wars, which risks nuclear escalation against battle-hardened opponents once the economic and human costs of conventional war spiral out of control. This key lesson still goes unheeded due to fake news mass media scams! Russia has always recognised the truth about the power of nuclear weapons when the chips go down:

Ministry of Defense of the USSR, *NUCLEAR WEAPONS - MANUAL FOR OFFICERS, "FOR PERSONAL USE" (i.e. CONFIDENTIAL)* (individually numbered), CHAPTER ONE, NUCLEAR WEAPONS AND THEIR MEANS OF USE, p3: "**A nuclear explosion can inflict heavy losses on the enemy in manpower and military equipment, destroy lower structures over large areas, have a strong moral impact on the enemy's troops, and create favorable conditions for the side using nuclear weapons, to achieve success in battle."**

Below: 13 July 2024 Russian State TV Channel 1 (Putin's Kremlin controlled Russian language propaganda channel for the Russian people): "Any confrontation with the NATO bloc is possible only with the use of nuclear weapons. There is simply no other option. If NATO's military organization surpasses us, it is absolutely futile for us to enter into such an armed confrontation with conventional means of destruction only."

NO: this is not "just a bluff". Putin has over 2000 tactical neutron bombs; we have damn all now. OK? We DID have dedicated tactical nuclear weapons until 1992, and they deterred Russian invasions, but since then we have cut back our deterrence to a bare minimum which excludes the deterrence of conventional wars which risk escalating (like the invasions of Belgium in 1914 and Poland in 1939) into a World War, despite Herman Kahn's warnings of the dangers from minimum deterrence in his 1960 book *On Thermonuclear War*.



"If we are able to use these weapons, and the enemy does not have them, their military effect can only be matched by his use of larger-yield dirty weapons - with the political and propaganda penalties their use implies. **Of course the converse will also be true**." - Samuel T. Cohen, *Low-yield fusion weapons for limited wars,* RAND report R-347, 1 June 1959, Secret - Restricted Data classified, p.2 (note this report is based on Livermore laboratory's very clean low yield Dove and Starling devices, developed after the successful testing of 95% clean 4.5 megaton Navajo and 85% clean 3.53 megaton Zuni at Bikini Atoll in 1956 which had lead pushers; Cohen's declassified paper is now in Eisenhower's Presidential Library with annotation on the front cover proving President Eisenhower was briefed on it in 1959!).

"There is another way in which we can have too narrow a focus. We can refuse to entertain or consider seriously ideas which seem to be 'crackpot' or unrealistic, but which are really just unfamiliar. In more casual days one could dismiss a bizarre-sounding notion with a snort or comment about it being impractical or implausible. Things moved slowly, and no real harm was done if a new idea took several years to prove itself. Indeed, allowing a notion to stay around for several years before giving it serious intellectual attention meant that most of the 'half-baked' ones got scuttled and never had to be considered seriously at all." - H. Kahn, On Thermonuclear War, p125.

"At times, the costs and risks of trying to shift the balance of power are too great, forcing great powers to wait for more favorable circumstances. But the desire for more power does not go away, unless a state achieves the ultimate of hegemony. Since no state is likely to achieve global hegemony, however, the world is condemned to perpetual great-power competition. ... They will seize these opportunities if they have the necessary capability. Simply put, great powers are primed for offense. ... a great power will defend the balance of power when looming change favors another state ... states recognise that the more powerful they are relative to their rivals, the better their chances of survival. Indeed, the best guarantee of survival is to be a hegemon ... Great powers ... have little choice but to pursue power and to seek to dominate the other states in the system. This dilemma is captured in brutally frank comments that Prussian statesman Otto von Bismarck made during the early 1860s, when it appeared that Poland, which was not an independent state at the time, might regain its sovereignty. 'Restoring the Kingdom of Poland in any shape or form is tantamount to creating an ally for any enemy that chooses to attack us,' he believed, and therefore he advocated that Prussia [today, North East Germany] should 'smash those Poles till, losing all hope, they lie down and die; I have every sympathy for their situation, but if we wish to survive we have no choice but to wipe them out'." - Professor John J. Mearsheimer, *The Tragedy of Great Power Politics*, 2001, chapter 1.

According to the *1984 Guinness Book of Records* (published for sale at Christmas 1983), page 219: "**Mass killings** ....The greatest massacre ever imputed by the government of one sovereign nation against the government of another is that of 26,300,000 Chinese during the regime of Mao Tse-tung between 1959 and May 1965. This accusation was made by an agency of the USSR Government in a radio broadcast on 7 Apr 1969. ... The Walker Report published by the US Senage Committee of the Judiciary in July 1971 placed the parameters of the total death roll within China since 1949 between 32.25 and 61.7 million. An estimate of 63.7 million was published by Jean-Pierre Dujardin in *Figaro* magazine of 19-25 Nov 1979. *USSR* The total death roll in the Great Purge or *Yezhovshchina,* in the USSR, in 1936-8 ... was administered by the *Narodny Kommissariat Vnutrennykh Del* (NKVD), or People's Commissariat of Internal Affairs, the Soviet security

service ... On 17 Aug 1942, Stalin indicated to Churchill in Moscow that 10 million *kulaks* had been liquidated for resisting the collectivization of their farms. ... **Genocide** ... It has been estimated that 35,000,000 Chinese were wiped out in the Mongolian invasion of 1210-19." This information about Chinese and Russian socialism mass killing of resistance in the 20th century is also given on pages 193-4 the *1975 Guinness Book of Records, 22nd edition* issued in October 1975, which also points out on pages 187-8 that over a million were killed during the 1st Battle of the Somme in 1916 France, 1.3-1.5 million were killed during the 880 days siege of Leningrad in WWII. (These horrific war casualties are dwarfed by the natural disasters table on page 212, giving 75 million dead of plague in 1347-51, 21.64 million dead of flu pandemic in 1918, 9.5 million dead from famine in China in 1877-8, 3.7 million dead in a flood in China in 1931, and 1.5 million dead from famine and typhus in Ireland in 1846-51.) So much for propaganda that nuclear deterrence "risks" are particularly horrific statistics in history! Tens of millions were killed by socialist dictators in modern times, without nuclear bombs. Similarly huge numbers were killed by natural disease pandemics and extreme weather. The key difference is that we can now deter invasions.



"Any of our contemporaries readily identifies two world powers, each of them already capable of utterly destroying the other. However, the understanding of the split too often is limited to this political conception: the illusion according to which danger may be abolished through successful diplomatic negotiations or by achieving a balance of armed forces. The truth is that the split is both more profound and more alienating, that the rifts are more numerous than one can see at first glance. ... Every ancient and deeply rooted self-contained culture, especially if it is spread over a wide part of the earth's surface, constitutes a self-contained world, full of riddles and surprises to Western thinking. ... But the persisting blindness of superiority continues to hold the belief that all the vast regions of our planet should develop and mature to the level of contemporary Western systems, the best in theory and the most attractive in practice; that all those other worlds are but temporarily prevented (by wicked leaders or by severe crises or by their own barbarity and incomprehension) from pursuing Western pluralistic democracy and adopting the Western way of life. Countries are judged on the merit of their progress in that direction. But in fact such a conception is a fruit of Western incomprehension of the essence of other worlds, a result of mistakenly measuring them all with a Western yardstick. The real picture of our planet's development bears little resemblance to all this. ...

"Every conflict is solved according to the letter of the law and this is considered to be the ultimate solution. ... A statesman who wants to achieve something important and highly constructive for his country has to move cautiously and even timidly; thousands of hasty (and irresponsible) critics cling to him at all times; he is constantly rebuffed by parliament and the press. He has to prove that his every step is well-founded and absolutely flawless. Indeed, an outstanding, truly great person who has unusual and unexpected initiatives in mind does not get any chance to assert himself; dozens of traps will be set for him from the beginning. Thus mediocrity triumphs under the guise of democratic restraints. ... When a government earnestly undertakes to root out terrorism, public opinion immediately accuses it of violating the terrorists' civil rights. ... If they have misled public opinion by inaccurate information or wrong conclusions, even if they have contributed to mistakes on a state level, do we know of any case of open regret voiced by the same journalist or the same newspaper? No; this would damage sales. A nation may be the worse for such a mistake, but the journalist always gets away with it. It is most likely that he will start writing the exact opposite to his previous statements with renewed aplomb. Because instant and credible information is required, it becomes necessary to resort to guesswork, rumors, and suppositions to fill in the voids, and none of them will ever be refuted; they settle into the readers' memory.

"How many hasty, immature, superficial, and misleading judgments are expressed every day, confusing readers, and are then left hanging? The press can act the role of public opinion or miseducate it. ... In the Communist East, a journalist is frankly appointed as a state official. But who has voted Western journalists into their positions of power, for how long a time, and with what prerogatives? ... **A Fashion in Thinking.** ***Without any [objective] censorship in the West, fashionable trends of thought and ideas are fastidiously separated from those that are not fashionable, and the latter, without ever being forbidden, have little chance of finding their way into periodicals or books or being heard in colleges. Your scholars are free in the legal sense, but they are hemmed in by the idols of the prevailing fad. There is no open violence, as in the East; however, a selection dictated by fashion and the need to accommodate mass standards frequently prevents the most independent-minded persons from contributing to public life and gives rise to dangerous herd instincts that block successful development. In America, I have received letters from highly intelligent persons—maybe a teacher in a faraway small college who could do much for the renewal and salvation of his country, but the country cannot hear him because the media will not provide him with a forum.*** ...

"The mathematician Igor Shafarevich, a member of the Soviet Academy of Science, has written a brilliantly argued book entitled Socialism; this is a penetrating historical analysis demonstrating that socialism of any type and shade leads to a total destruction of the human spirit and to a leveling of mankind into death. ... [George] Kennan's advice to his own country—to begin unilateral disarmament—belongs to the same category. If you only knew how the youngest of the officials in Moscow's Old Square roar with laughter at your political wizards! ... But in fact, members of the US antiwar movement became accomplices in the betrayal of Far Eastern nations, in the genocide and the suffering today imposed on thirty million people there. Do these convinced pacifists now hear the moans coming from there? Do they understand their responsibility today? Or do they prefer not to hear? ... To defend oneself, one must also be ready to die; there is little such readiness in a society raised in the cult of material well-being. Nothing is left, in this case, but concessions, attempts to gain time, and betrayal. ... Liberalism was inevitably pushed aside by radicalism, radicalism had to surrender to socialism, and socialism could not stand up to communism. The Communist regime in the East could endure and grow due to the enthusiastic support from an enormous number of Western intellectuals who (feeling the kinship!) refused to see communism's crimes, and when they no longer could do so, they tried to justify these crimes."

- Russian dissident Aleksandr Solzhenitsyn's Commencement Address at Harvard University, A World Split Apart, June 8, 1978.

ABOVE: as Herman Kahn predicted in his 1960 *On Thermonuclear War*, the paranoid anti-arms race groupthink mob insanity of "disarmament and arms control" public coercion after the first World War was not a fluke, but instead was a standard human reaction to the end of a war. It sowed the seeds of another war! Similarly, after Cold War 1.0 ended in 1991, opposition to disarmament and arms control virtually disappeared, so enhanced neutron tactical nuclear weapons (which deterred the kind of invasions and conventional warfare that led to both World Wars, including nuclear weapons use twice in the second one), were removed unilaterally by the West, allowing Russian aggression to trigger Cold War 2.0. This is basically a repetition of the way fake "pacifist" disarmament propaganda lying by Lord Noel-Baker (who in a BBC radio broadcast in February 1927 first claimed that there was no defense against gas WMD except disarmament) and Sir Norman Angell (who had been at it since 1908 with his "Great Illusion" anti-deterrence book, see his pre-WWI argument with Churchill reported by Professor Cyril Joad in the latter's 1939 book "Why War?"), engineered disaster via *populist weapons effects lying, "knockout blow" deceptions, and lying denials of civil defense effectiveness to negate threats (all the lessons of these lies have NOT been learned, and people like Lord Noel-Baker, who lied about gas knockout blows on BBC radio in February 1927, were still doing exactly the same thing with nuclear weapons fallout lies in 1980 in response to "Protect and Survive"!)*.

You won't find any objective analysis of this in any "history book", all of which follow left wing Marxism propaganda or the anti-nuclear biased CND bigot AJP Taylor, in denying the facts using a data-dump of horseshit propaganda to bury the truth. In reality, as the cartoon published in the 17 May 1919 Daily Herald by Will Dyson shows, people did predict another war by 1940 as a result of the 1919 "peace deal" by Clemenceau, Lloyd George, Woodrow Wilson and Baron Sonnino. But most people prefer to believe lies, a fact shown clearly by an unbiased view of history, or even by an unbiased view of "superstring theory" in physics. But don't dare to stand up for truth, because you'll be subject to lying ad hominem attacks and denied a right to reply and debunk the liars. Power corrupts absolutely because the cowardly crowd backs "fashion", not fact.

This was explained back in 1532 by Machiavelli in *The Prince:* “It ought to be remembered that there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new. This coolness arises partly from fear of the opponents, who have the laws on their side, and partly from the incredulity of men, who do not readily believe in new things until they have had a long experience of them.”

It was also later explained by John Stuart Mill, On Liberty, 1859: “A general State education is a mere contrivance for moulding people to be exactly like one another: and the mould in which it casts them is that which pleases the predominant power in the government, whether this be a monarch, a priesthood, an aristocracy, or the majority of the existing generation; in proportion as it is efficient and successful, it establishes a despotism over the mind ...”

And don't forget Professor F. A. Hayek, The Constitution of Liberty, Routledge and Kegan Paul, London, 1960, p. 379: “The very magnitude of the power over men’s minds that a highly centralised and government-dominated system of education places in the hands of the authorities ought to make one hesitant before accepting it too readily.”



This attitude encourages the mainstream media or "liberals" to censor anything that debunks their agenda. To recap, anti-deterrence propaganda from bigoted liars is the orthodoxy, and infects nuclear weapons discussions, deterrence discussions, and the entire "arms control and disarmament" movement with crap. Mainstream media would shut down the internet to "protect" people from potential "error". It's all Stalinist censorship, made plain by Orwell's book *1984*, but ignored as "taboo" by thug censors masquerading as "liberals".

Kahn made the following point about disarmament and arms control: reducing nuclear stockpiles and unilaterally eliminating Type II Deterrence (i.e. deterrence of the provocations that cause war, e.g., disarming in 1992 the West's W79 neutron bombs to deter the invasions that set off both World Wars) doesn't make you safer, because it increases the risk of war as proved by history. Reducing the risk of an "accidental" nuclear war is best done using ABM, civil defense, plus safeguards inside nuclear weapons, than by disarmanent which increases the risk of war by reducing credible deterrence of war. The idea that unilateral disarmament protects you is like saying that nuclear-unarmed Hiroshima and Nagasaki were safe from nuclear attack in August 1945 because they were so-called "Nuclear Free Zones"! Similarly, the fact the world was non-nuclear in 1939 didn't stop nuclear weapons being manufactured and used to end that war! All of the CND arguments are fake news, just as all the arguments by Angell in 1908 against deterrence were fake news. Fakes news sells - as proved by the sale of fairy tales and "fiction". Even if you don't like particular uses or yields of nuclear weapons, there is a choice of tailored nuclear warhead yields and designs, and types of employment to produce different effects, with widely variable cleanliness, neutron output, EMP output, and the separation of heat, blast and fallout effects in air and subsurface bursts, to deter invasions without the collateral damage that accompanies conventional warfare.

"It is entirely plausible that the Nobel Peace Prize [albeit on a more rational and honest planet] should have been awarded to the designers of the first SLBM (submarine launched ballistic missile) systems, for in being so well hidden under the seas, this kind of weapon has made war much less likely during these years and, further, let each side relax somewhat more in the knowledge that such war was unlikely." - George H. Quester, "Maritime Issues In Avoiding Nuclear War", *Armed Forces and Society*, v13, issue 2, Winter 1987, p. 199.



[Reproduced by kind permission of the *Daily Herald*.

The Tiger.: "STRANGE! I SEEM TO HEAR A CHILD WEEPING."

A cartoon by the late Will Dyson, which appeared in the *Daily Herald* on the 17th MAY, 1919. It shows the "Big Four," with Clemenceau ("The Tiger") in the foreground, followed by President Woodrow Wilson, Baron Sonnino, and Lloyd George.

ABOVE: the Russians have recently released a PDF of their detailed technical nuclear effects analysis of the survival of their cheap civil defense dual-use style (basement car park etc in peacetime) nuclear war shelters: "Civil defense shelters. Designs and calculations" by VA Kotlyarevsky, VI Ganushkin, AA Kostin, et al.; edited by VA Kotlyarevsky. - M.: Stroyizdat, 1989 (607 pages long, 144 references, full of equations and graphs). (Russian: "Убежища гражданской обороны. Проекты и расчеты" / В.А. Котляревский, В.И. Ганушкин, А.А. Костин и др.; под редакцией В. А. Котляревского. - М.: Стройиздат, 1989. https://tehne.com/library/ubezhishcha-grazhdanskoy-oborony-konstrukcii-i-raschet-moskva-1989) This tells you that these are not "just for show", but are blast and radiation hardened double-blast door, very high overpressure surviving, very intense fallout surviving protection that fundamentally alters the strategic balance and undermines our nuclear deterrent. This should nukegate the "Scientific American" and other pro-Russian, Western deterrent undermining thugs.

В.А. Котляревский, В.И. Ганушкин,
А.А. Костин, А.И. Костин, В.И. Ларионов

УБЕЖИЩА ГРАЖДАНСКОЙ ОБОРОНЫ

Конструкции и расчет

Под редакцией
д-ра техн. наук,
проф. В.А. Котляревского

Москва
Стройиздат
1989

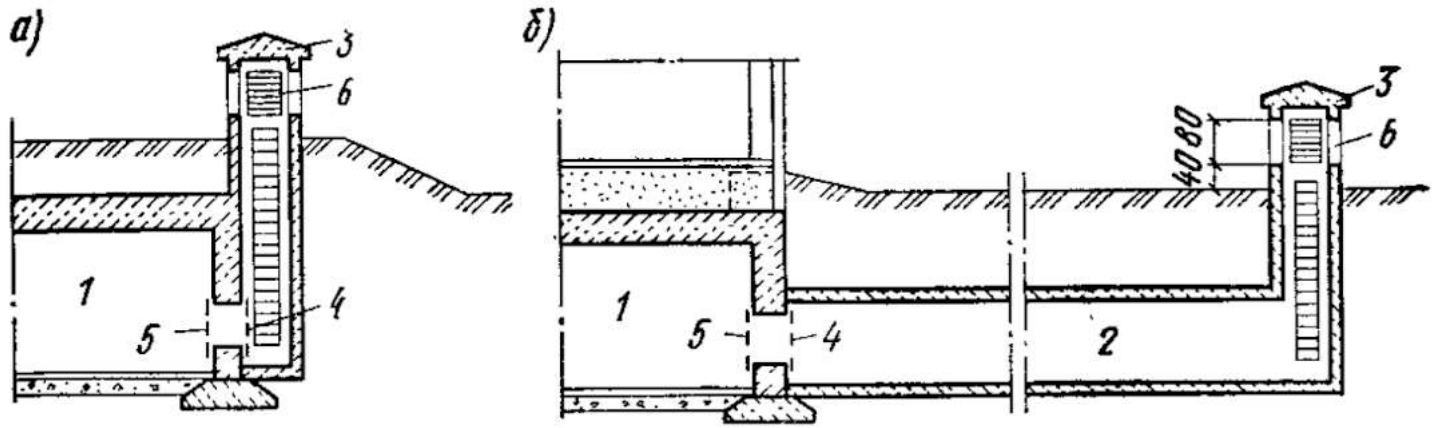


Рис. 4.5. Разрез аварийного выхода из убежища

а — примкнутый к убежищу; *б* — с устройством тоннеля; *1* — помещение убежища; *2* — тоннель аварийного выхода; *3* — неразрушаемый оголовок; *4* — защитно-герметический ставень; *5* — герметический ставень; *6* — жалюзийные решетки

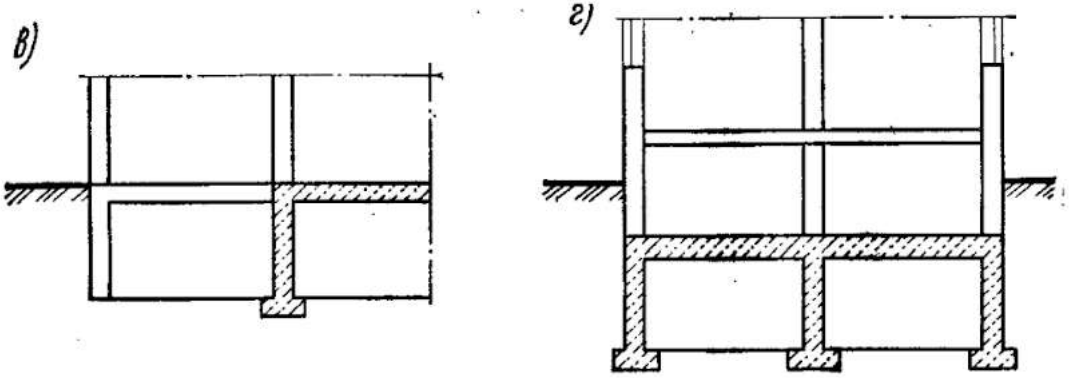


Рис. 7.2. Схемы размещения убежищ

а — в подвалах частично заглубленных в грунт; *б* — в подвалах полностью заглубленных в грунт; *в* — в подвалах с выходом стен убежищ в незащищенные помещения; *г* — под техническими подпольями



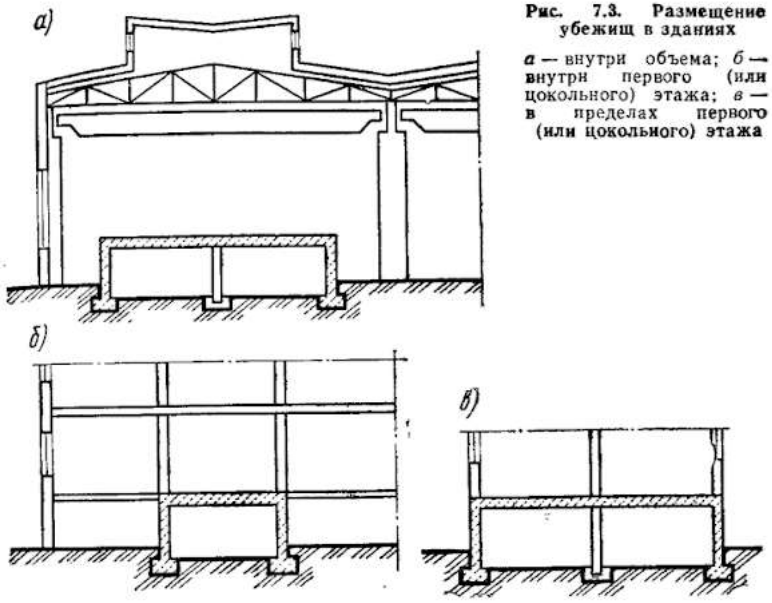


Рис. 7.3. Размещение убежищ в зданиях

а — внутри объема; *б* — внутри первого (или цокольного) этажа; *в* — в пределах первого (или цокольного) этажа

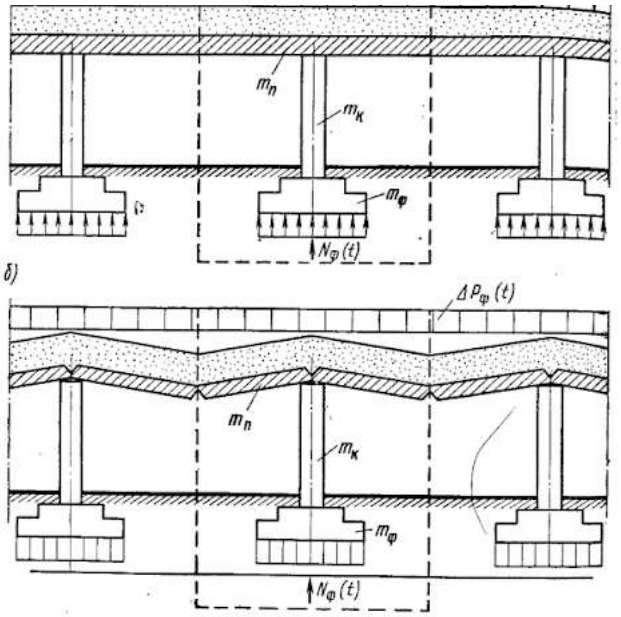


Рис. 8.1. Расчетная схема к определению параметров движения убежищ
а — при работе элементов покрытия в упругой стадии; *б* — в пластической стадии

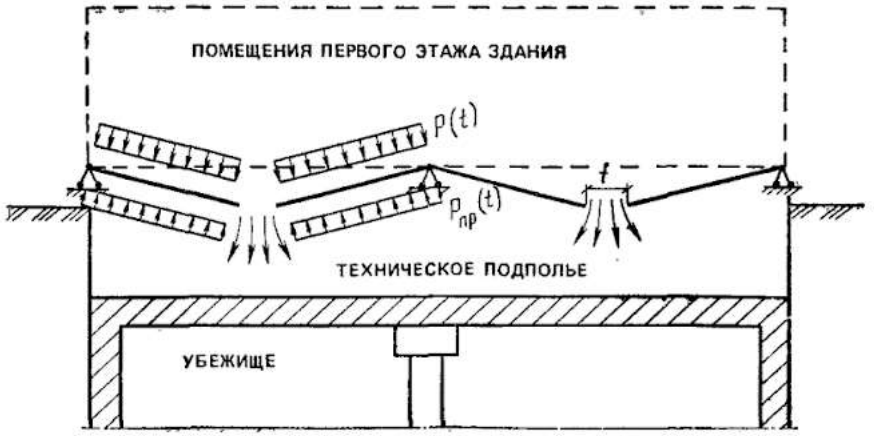


Рис. 7.4. Расчетная схема к определению параметров волны затекания в техническом подполье

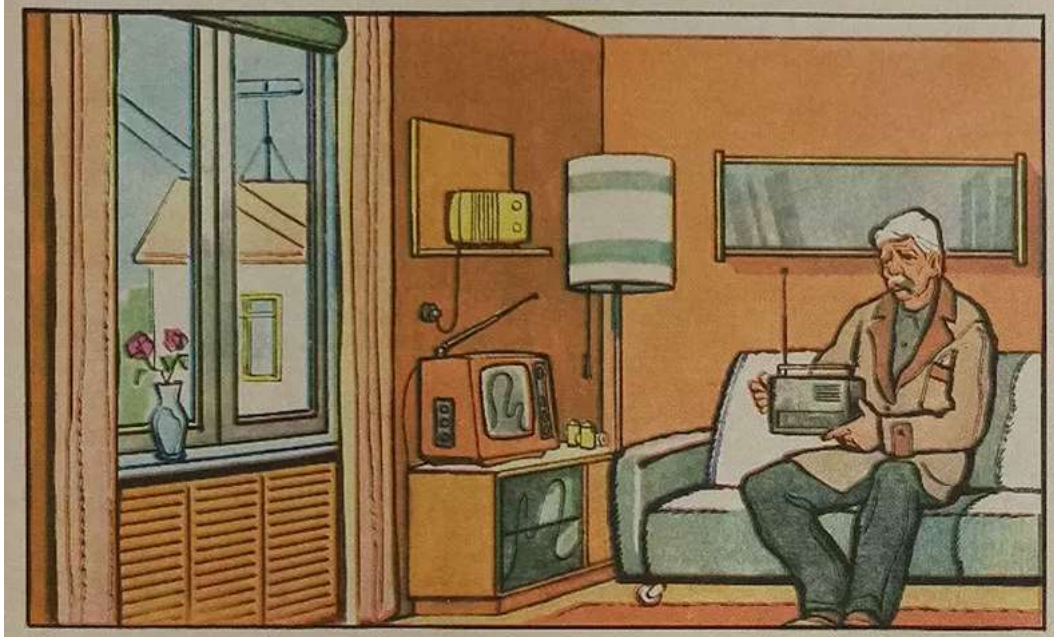
SOURCE: *Civil defense shelters. Designs and calculations by VA Kotlyarevsky, VI Ganushkin, AA Kostin, et al.; edited by VA Kotlyarevsky. - M.: Stroyizdat, 1989 = Убежища гражданской обороны. Проекты и расчеты / В.А. Котляревский, В.И. Ганушкин, А.А. Костин и др.; под редакцией В. А. Котляревского. - М.: Стройиздат, 1989.*


Очаг ядерного поражения
ГОРЕНИЕ, ТЛЕНИЕ В ЗАВАЛАХ
СПЛОШНЫЕ ПОЖАРЫ
30 кПа
ОТДЕЛЬНЫЕ ПОЖАРЫ
20 кПа
10 кПа


ПОРАЖАЮЩИЕ ФАКТОРЫ ЯДЕРНОГО ВЗРЫВА
ПРОНИКАЮЩАЯ РАДИАЦИЯ,
средства защиты от нее
БЕТОН—10 см
ГРУНТ—14 см
КИРПИЧ—14 см
ДЕРЕВО—30 см
ТОЛЩИНА СЛОЕВ РАЗЛИЧНЫХ МАТЕРИАЛОВ, ОСЛАБЛЯЮЩАЯ ДЕЙСТВИЕ НЕВИДИМЫХ ЛУЧЕЙ В 2 РАЗА
УБЕЖИЩЕ
УКРЫТИЕ (подвал дома)
ПЕРЕКРЫТАЯ ЩЕЛЬ
ОТКРЫТАЯ ЩЕЛЬ
РАДИОАКТИВНОЕ ЗАРАЖЕНИЕ МЕСТНОСТИ,
средства защиты от него
ЗАЩИТНЫЕ СООРУЖЕНИЯ ОСЛАБЛЯЮТ ДОЗУ ОБЛУЧЕНИЯ ЛЮДЕЙ:


в 10 раз
в 2 раза
в 40–100 раз
в 7 раз
в 40–100 раз
в 3 раза

МЕРОПРИЯТИЯ ПО ПОВЫШЕНИЮ ЗАЩИТНЫХ СВОЙСТВ ДОМА (КВАРТИРЫ)



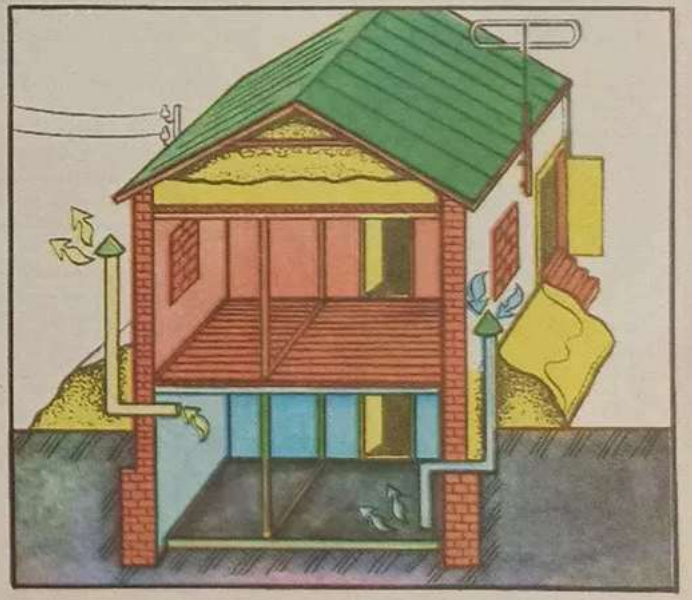
Оборудование дома (квартиры) средствами связи для своевременного получения распоряжений органов Советской власти и сигналов оповещения гражданской обороны



Подготовка дома (квартиры) в противопожарном отношении







Оборудование подвала дома под противорадиационное укрытие	Усиление защитных свойств помещений от проникающей радиации	Подготовка дома (квартиры) к защите от проникновения радиоактивной пыли и аэрозолей

ПОРАЖАЮЩИЕ ФАКТОРЫ ЯДЕРНОГО ВЗРЫВА

Проникающая радиация — это поток гамма-лучей и нейтронов, испускаемых в момент ядерного взрыва.

Поражающее действие проникающей радиации на людей вызывается облучением, которое оказывает вредное биологическое действие на клетки организма, в результате чего человек заболевает так называемой лучевой болезнью.

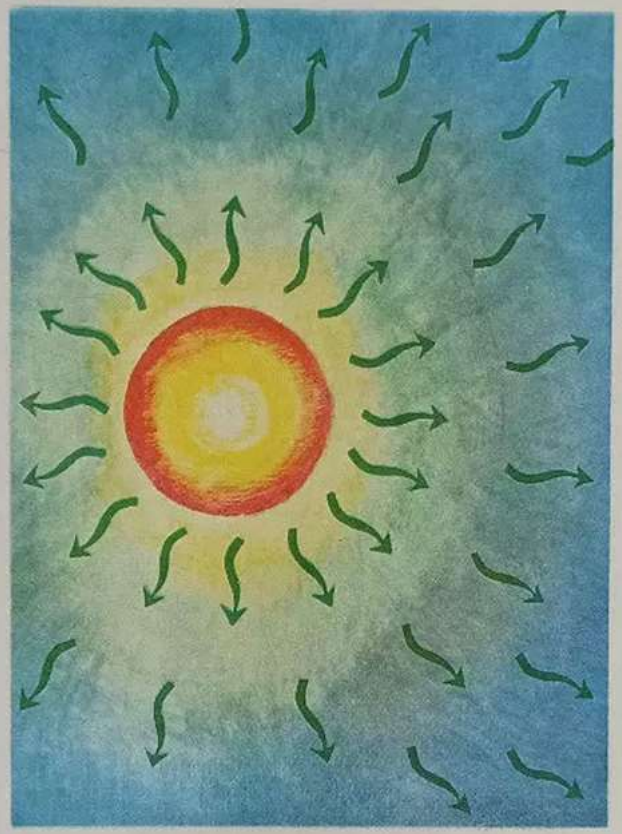
В зависимости от дозы облучения (которая измеряется в рентгенах) различают три степени лучевой болезни: первую (легкую), вторую (среднюю) и третью (тяжелую).

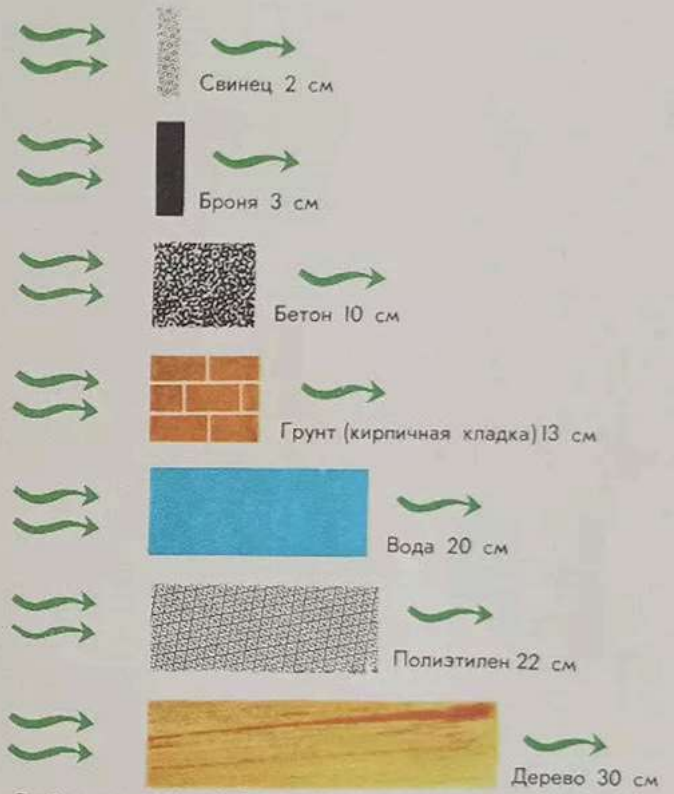
При лучевой болезни первой степени скрытый период продолжается две-три недели, после чего появляется недомогание, общая слабость, тошнота, головокружение, повышается температура.

При лучевой болезни второй степени скрытый период длится около недели, признаки заболевания — как и при лучевой болезни первой степени, но в более ярко выраженной форме. При активном лечении выздоровление наступает через 1,5—2 месяца.

Скрытый период при лучевой болезни третьей степени сокращается до нескольких часов. Болезнь протекает более интенсивно. При активном лечении выздоровление наступает через несколько месяцев.

Ослабление интенсивности гамма-излучения характеризуется слоем половинного ослабления. Это слой вещества, при прохождении которого интенсивность гамма-лучей уменьшается в два раза.





Слой половинного ослабления некоторых материалов

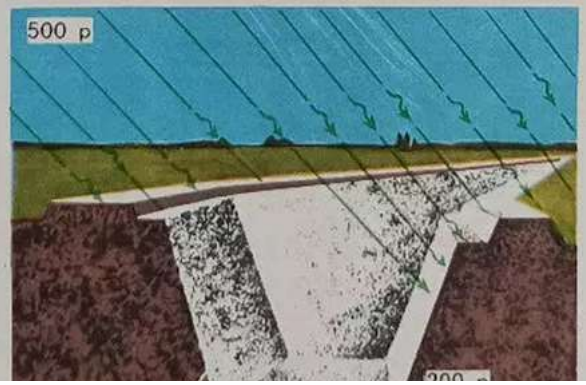
За преградами доза радиации значительно меньше, чем на открытой местности. Убежища практически полностью защищают от радиации.

ЕСЛИ ДОЗЫ ОБЛУЧЕНИЯ ПРЕВЫШАЮТ ДОПУСТИМЫЕ, ЧЕЛОВЕК ЗАБОЛЕВАЕТ ЛУЧЕВОЙ БОЛЕЗНЬЮ!

СТЕПЕНИ ЛУЧЕВОЙ БОЛЕЗНИ

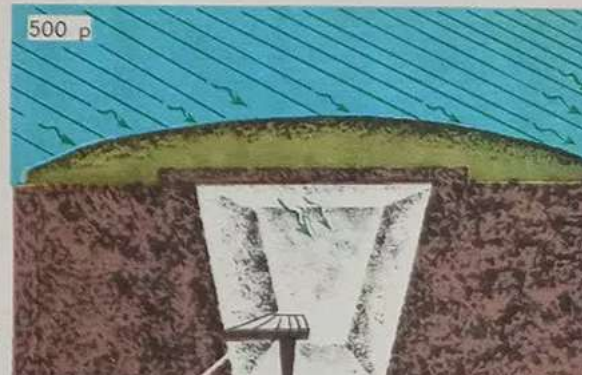
100-200 р — лучевая болезнь I степени

200-300 р — лучевая болезнь 2 степени



Открытые щели ослабляют радиацию в 3—10 раз

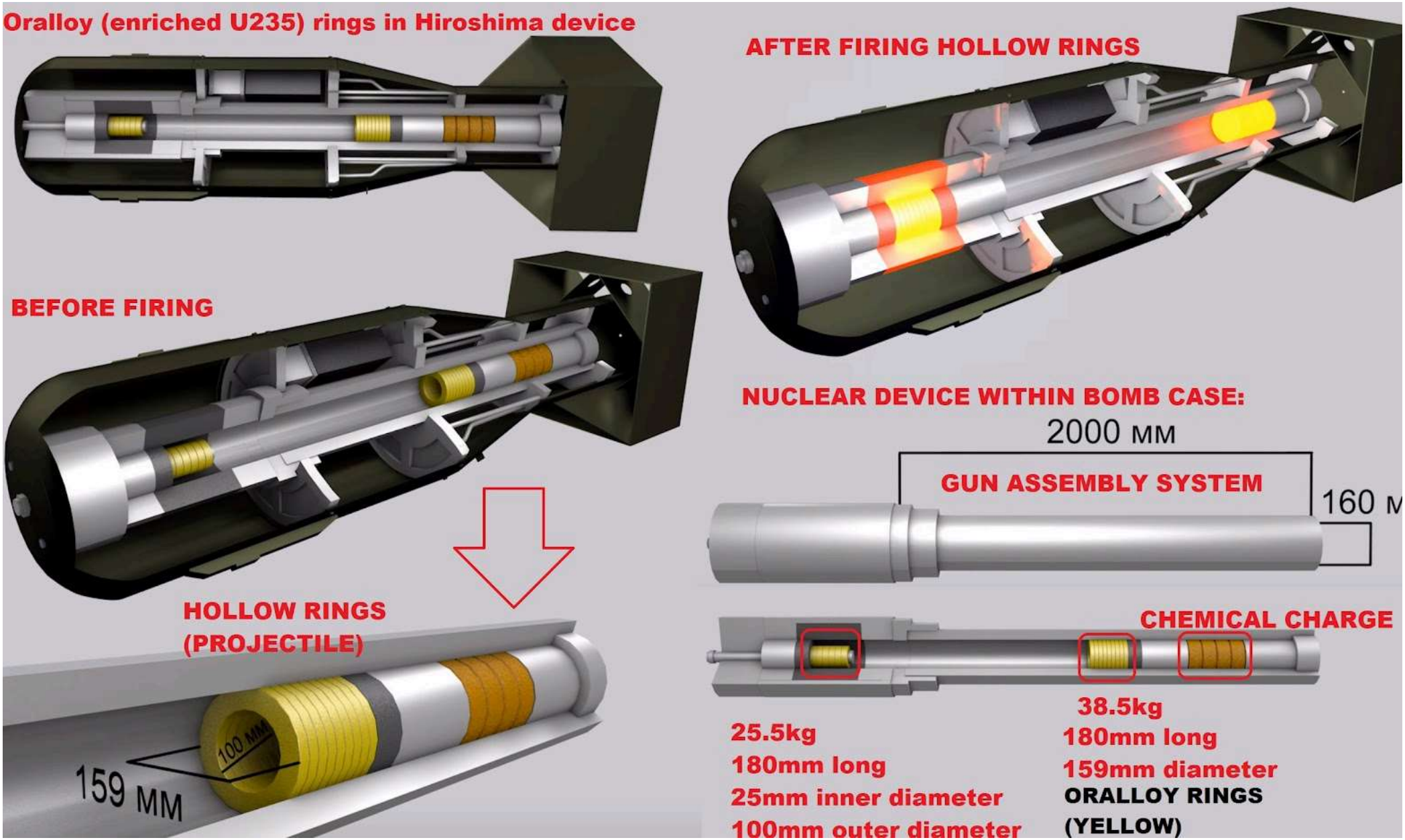
Перекрытые щели ослабляют радиацию в 25—50 раз

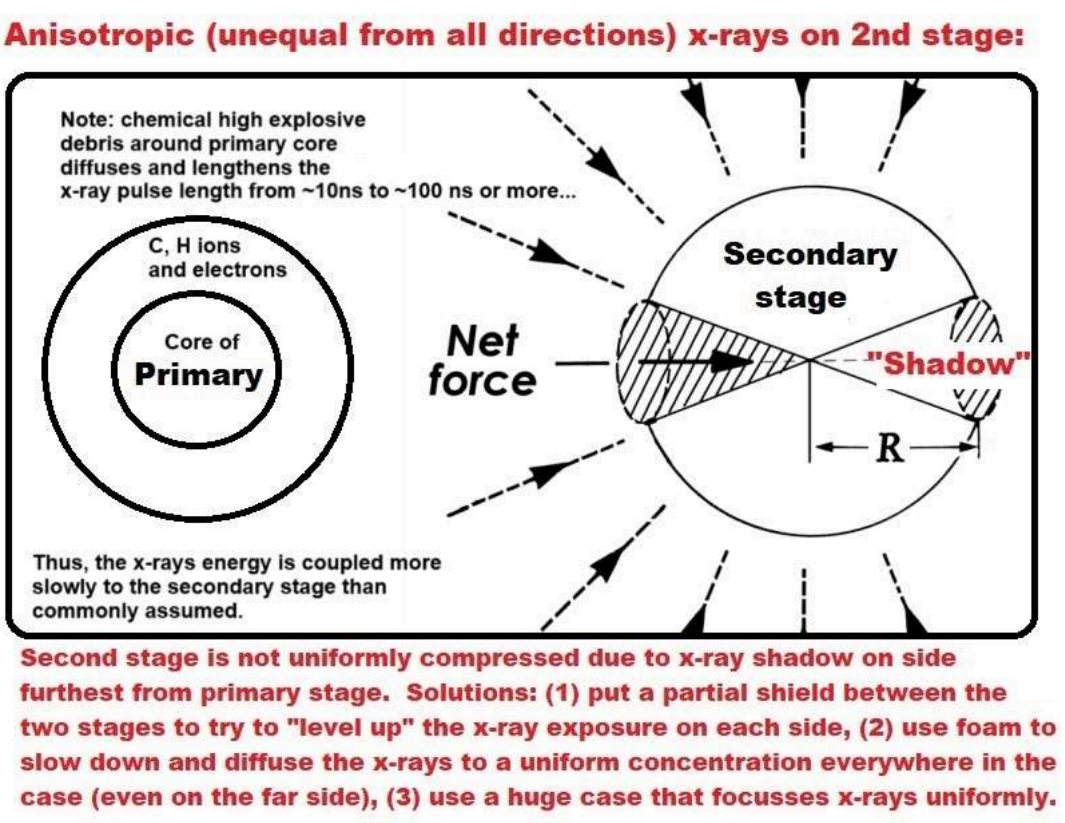


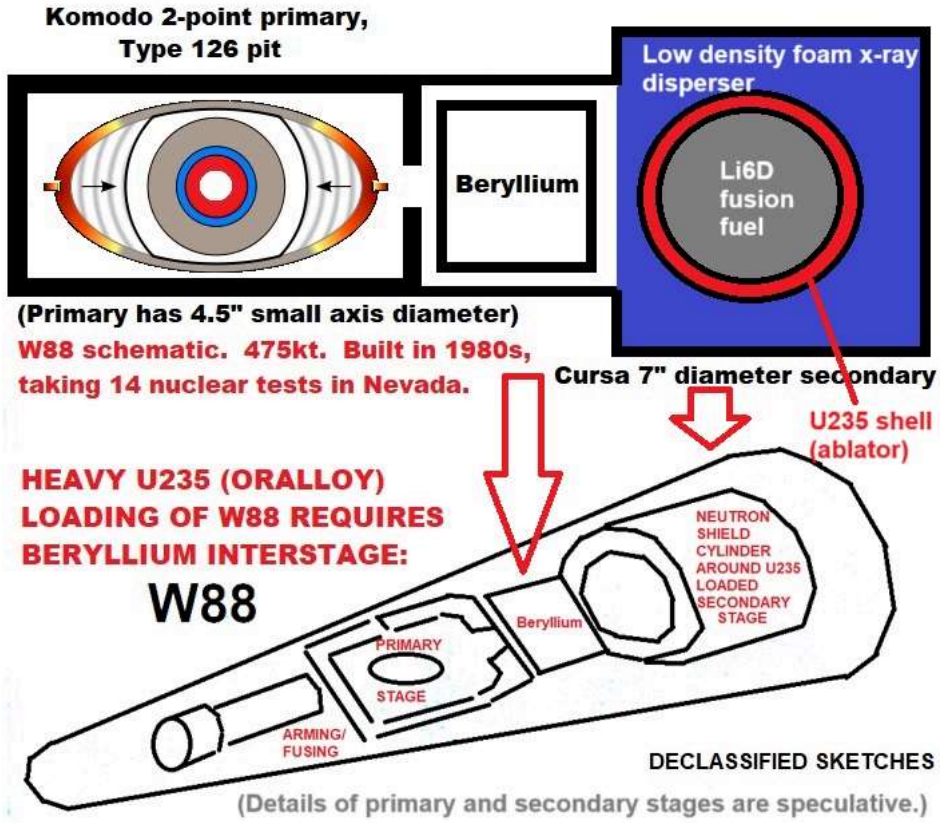
300-450 р— лучевая болезнь 3 степени

50 р

10—20 р





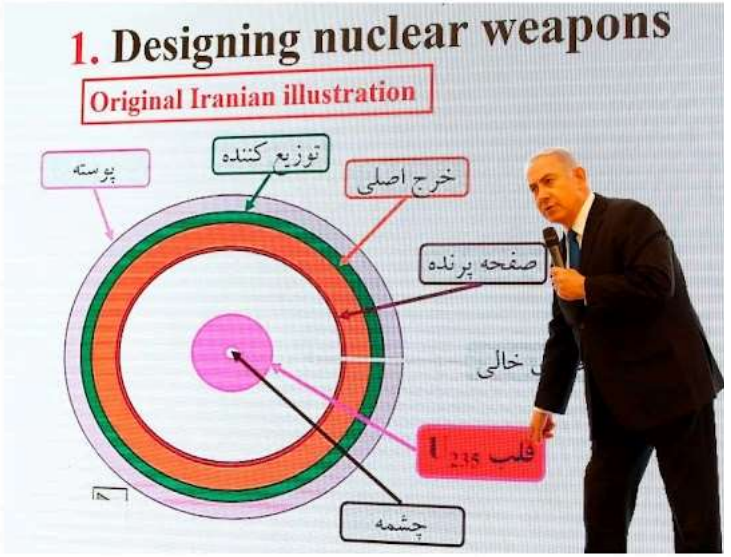


ABOVE: Kahn pointed out in *On Thermonuclear War* 1960 that the way to prevent invasions and wars in the Middle East is nuclear proliferation of CREDIBLE deterrents (not just nuclear weapons, but also ABM and civil defense shelters to mitigate the civilian collateral damage) that really DETER/HALT INVASIONS (the key is to focus on the 1914 invasion of Belgium by mobilization and concentrated force, triggering WWI and the same for Poland in 1939, triggering WWII): if both sides have a credible, stable nuclear deterrent against INVASIONS (i.e., stable = safe from destruction in an enemy 1st strike, so that nuclear retaliation is guaranteed), you get mutual deterrence and thus peace, not war. And even if one side DOES try an attack, a neutron bomb air burst can discriminately halt the aggression, without any collateral damage (of the sort caused by conventional warfare such as the invasions by the Russians in Ukraine and by Hamas in Israel). Conventional weapons are not a substitute because their mobilization along frontiers causes "crisis instability" as occurred in 1914, leading to war. *This is why compact, long-range nuclear weapons to prevent this kind of 1914 mobilization "crisis instability" trigger problem, are required.* Nuclear escalation can be deterred, just as gas war escalation was deterred against terrorist states successfully in WWII, by a combination of credible civil defense plus retaliation threats capability. The "all out" use of nuclear weapons is simply a form of nuclear disarmament, that leaves the aggressor open to retaliation by the other side's protected 2nd strike (retaliation) force. We have to get this message out past the fake news and "taboo" superstitions of anti-deterrent warmongering paranoid disarmament quacks and charlatans masquerading as "peace advocates". If you want a "two-state solution" and one of those two states is intent on the racist extermination of the other, it shouldn't require Einstein to declare that pressurised "peace talks" are going to be "double-talk"; the slavery issue of 1861 in America wasn't resolved by a "two-state solution" with the southern Confederacy one state and the northern Union the other, nor was the protestant-catholic conflict in Northern Ireland resolved by a "two-state solution", but by a single-state solution with power sharing. You don't resolve a conflict by pressurised "peace talks" or "declarations" between leading opponents in bad faith, but only by genuine accommodation of differences at grass roots or street level. This is why conflicts and wars come before peace settlements. If you really want a "two-state solution" between bitter rivals, you need a credible deterrent to keep the peace. Machiavelli or Marx? Truth or lying? That's the choice.

The Russians appear to have been deceived by some of American propaganda on first strike capabilities. The unclassified 751 pages 1987 Brookings Institute compendium, *Managing nuclear operations* edited by Carter, Steinbruner and Zraket, in Fig 15-2 on p510 gives a chart taken from a 1974 Russian report by **K. V. Tarsakanov, *Matematika i vooruzhennaya bor'ba = Mathematics and armed struggle*** which on page 184 indicates the Russians intended to destroy 80% of military targets, 60% of economic and 20% of population in the USA. Fig 17-2 on p580 of *Managing nuclear operations* claims that Russia intended to use high altitude SLBM bursts from nearby offshore submarines for EMP to cut communications and early warning within 5 minutes of a "Standard Scenario for Soviet Attack", followed by SLBM attacks on coastal targets within 15 minutes, and ICBM detonations at 30 minutes. Two Russian submarines offshore on East and West coasts could hit all coastal cities by power supply disabling EMP by simply firing megaton warheads vertically upwards 100 km; each warhead would take out the power to cities on one coast within a few minutes of launch and without any risk of interception.

Glasstone and Dolan stated in *The Effects of Nuclear Weapons* (1977), Table 12.17 on page 546, that the median distance in Hiroshima for survival after 20 days was 0.12 miles for people in concrete buildings and 1.3 miles for people standing outdoors. Therefore the median distances for survival in modern city buildings and in the open differed by a factor of 11 for Hiroshima; the difference in areas was thus a factor of 11^2 or about 120. *Hence, taking cover in modern city buildings*





ABOVE: Ben Netanyahu explaining th design of the Iranian uranium-235 implosion nuclear warhead, as compared to Israeli plutonium-239 implosion nuclear warhead (photos o left, courtesy of Mordechai Vanunu of the Israeli reactor at Dimona, taken in 1986). Compression of core in a neutron reflector reduces critical mas

reduces the casualty rates and the risks of being killed by a factor of 120 for Hiroshima conditions, contrary to popular media presented political propaganda that civil defence is hopeless. This would reduce 500,000 casualties for people unprotected in the open (assumed generally throughout Glasstone's book and about 100% of anti-nuclear propaganda) to 4,000 casualties, if people are on the lower floors of concrete buildings.

(NOTE: back in 1990, I completed the unpublished book *Nuclear Weapons Effects Theory*, debunking Glasstone's "free fields" blast and radiation calculations for modern cities. Basically, the oscillation of, and at higher pressures the plastic zone damage of, modern reinforced concrete city buildings by blast waves is easy to calculate, and irreversibly absorbs free-field blast energy, quickly lowering the overpressure and dynamic pressure to values way lower than measured over unobstructed desert and ocean at nuclear weapons tests and reported by Glasstone. Penney measured this blast energy absorption effect at both Hiroshima and Nagasaki, where the majority of buildings were single storey wood-frame, not concrete. Dr John von Neuman predicted this blast energy attenuation by causing destruction in Los Alamos blast wave secret reports LA-1020/LA-1021, from which it entered Glasstone's 1950 Effects of Atomic Weapons, but Dr Bethe deleted this information from the unclassified summary version, LA-2000, and it was deleted from the later Glasstone *Effects of Nuclear Weapons* 1957-77, and replaced with a denial of this fact, despite the fact it is a consequence from the principle of conservation of energy, and the exclusion of the effect makes the blast treatment wrong. Similarly, throughout the 1950s the UK Home Office Scientific Advisory Branch calculated thermal effects allowing for skyline shadowing, disproving firestorms and related nuclear winter using this mechanism, but secrecy was used to prevent the information getting wide coverage. Glasstone also mis-calculates all other nuclear effects, for example fallout and cratering are both based on debunked simplifications, exaggerating the effects by large factors. *Glasstone entirely ignores all political and military effects of nuclear weapons,* as well as the influence of clean secondary stages on the effects of nuclear weapons, e.g. the separation of effects for the air burst neutron bomb. Glasstone's book is really: "*The fake effects of nuclear weapons on civilian targets, ignoring the blast and radiation skyline shielding*"! Some declassified exaggerations in nuclear threats from Russian tactical nuclear weapons, debunking populist CND/Nukemap nuclear weapons effects propaganda, are presented in ***NUCLEAR WEAPONS COLLATERAL DAMAGE EXAGGERATIONS: IMPLICATIONS FOR CIVIL DEFENSE*. This is treated as "heresy" by the deluded quacks and charlatans of war-making "disarmament" taboos.**).

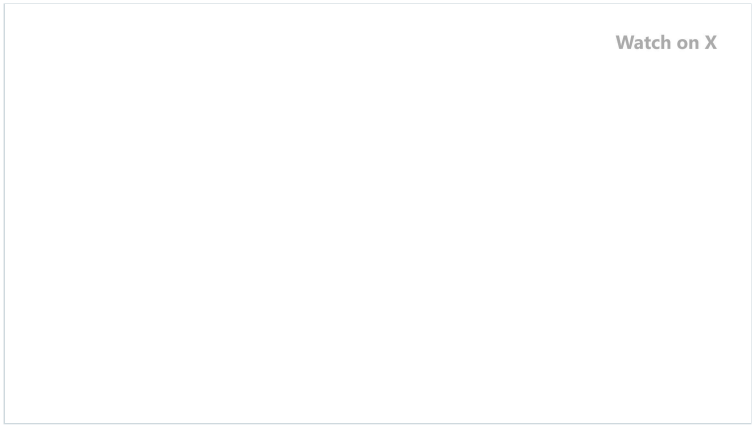
"The critical point is whether the Soviets and the Europeans believe that we can keep our casualties to a level we would find acceptable ... In such an eventuality, the Soviets would be **deterred from such provocative acts as a ground attack on Europe ... But if they do not believe that we can keep casualties to a level we would find acceptable, the Soviets may feel safe in undertakng these extremely provocative adventures** ... this in itself creates an extremely dangerous negotiating situation - one in which the possibility of extreme pressure and blackmail will always be in the background, if not the foreground. ... 'Will the survivors envy the dead?' Unless the President believes that the postwar world will be worth living in, he will in all likelihood be deterred from living up to our alliance obligations." - Herman Kahn, *On Thermonuclear War,* Princeton Uni. Press, 1960, page 35. *This is Kahn's key argument, explaining the Ukraine war today; a fact always ignored by 100% of "nuclear critics".* On page 34, Kahn gives a "notorious" table relating casualties to calculated recovery times for GDP; the GDP recovers in one year if 1% are killed, 100 years if 90% are killed. **This difference is similar to the observed 120-fold difference in risk of being killed in Hiroshima if people are outdoors and totally unshielded, to the risk when shielded by the lower floors of modern city concrete buildings. So efficient civil defense warnings make nuclear deterrence over 100 times more credible, reducing casualties and the time taken for economic recovery from 100 years to under 1 year!**

Kahn on page 48 of *On Thermonuclear War* easily debunks J. B. S. Haldane's genetic defects naive propaganda lie for nuclear war, because spreading out damage in time allows survival, whereas having all the damage kill 100% immediately *doesn't permit survival*. Kahn considers two nuclear attacks (Table 8): an initial 1,500 megatons on 150 targets, and a later wargasm of 20,000 megatons on 400 targets. He then goes into radiation effects lying propaganda by left-wing anti-nuclear disarmament fanatics, before giving the fallout gamma radiation effects much later on, in Tables 23 and 24. For the 1,500 megaton attack, only 1% of the area of the USA gets 6000-10,000R in the first 48 hours outdoors, requiring shelter protection factors of 40-65; for the 20,000 megaton attack, 50% of the area gets this radiation so you need 50 times more good shelter. As a result of these calculations, Kahn argues on p111: "we recommend that about $150 million be spent on identifying, counting, labelling and improving the best radiation protection in every neighbourhood so that people will know where to go...", adding that radiation meters are needed to enable people to go outdoors after 48 hours briefly to decontaminate or evacuate heavy fallout areas before getting a lethal radiation dose in structures offering poor protection. All this was, Kahn points out, published in a 1958 RAND Corp report ignored by President Eisenhower to save a few bucks (it was mostly implemented by Kennedy in 1961). In Tables 12, 13 and 14 Kahn shows how to deal with strontium-90 fallout contaminated food: on page 65 he points out that the linear no-threshold radiation effects theory is fake news for civil defense since the radium dial painters required 20,000 - 30,000 strontium units equivalent to get bone cancer, whereas the official safety limit is just 67 units! So simply by kicking out bad "science" (political "theory" standards) and keeping to actual radiation effects data, you resolve a problem by feeding food with over 25,000 strontium units to animals, and reserving less contaminated food for human consumption. Commenting generally on this kind of fashionable nuclear exaggeration mentality, Kahn explains on p160:

"... we are likely to suffer from the same movement towards 'responsible' budgets, pacifism, and unilateral and universal disarmament that swept through England in the 1920s and 1930s. The effect then was that England prematurely disarmed herself to such an extent that she first lost her voice in world affairs, and later her independence in a war that was caused as much by English weakness as by anything else."

Kahn adds to this on page 568:

"It is difficult and even impossible for most Americans to believe that they have an enemy. This is particularly true of intellectuals and 'men of good will'. ... that all sane men are reasonable and it ought to be easy to clear up misunderstandings by a few meetings and agreements (that is, they believe in what the psychiatrist calls a 'self-fulfilling prophecy' in the sense that 'good will generates good will' ..." Kahn testified to congress that Newman hadn't read his book!



Senator John F. Kennedy forecast in a speech to the Senate on 14 August 1958: "... the deterrent ratio might well shift to the Soviets so heavily, during the years of the gap, as to open to them a shortcut to world domination ... Their missile power will be the shield from behind which they will slowly, but surely, advance - through Sputnik diplomacy, limited 'brush fire' wars, indirect non-overt aggression, intimidation and subversion, increased prestige or influence, and the vicious blackmail of our allies. The periphery of the free world will shift against us." (If the Russians have 2,000 to 10,000 tactical neutron bombs and we have none, our "strategic balance" of ICBMs etc will be incredible retaliation, so our tactical deterrent "gap" in defenses puts us into the situation that Kennedy forecast.)

Kennedy's 1961 decision to back Kahn's crash civil defense program was apparently due to his attending the June 1959 nuclear war hearings (at which Herman Kahn first found fame); yet even earlier Kennedy had observed first-hand the appeasement of the Nazis while working for his father, the US Ambassador, for 6 months in 1939, writing his 150-pages thesis on "Appeasement at Munich: The inevitable result of the slowness of the British democracy to change from a disarmament policy"! This thesis was edited into the 1940 UK bestselling book "Why England Slept" by the New York Times journalist Arthur Krock (with a foreword by Henry Luce), in which Kennedy pointed out that the refusal of pro-disarmament northern left-wing councils to instigate civil defence (then called air raid precautions) supported fascist appeasement! However, Kennedy's interest in arms race, disarmament, and war issues goes back even further, to the year 1932, when he was 15 and in hospital, according to the author Kay Halle: "Joseph Kennedy Sr asked me if I would stop with him while we were in the hospital to see his young son who was in there quite ill. ... We went into his bedroom, his room at the hospital, and you could hardly see him, he was so buried in the bed under masses of books. ... I was awfully interested because the book he was reading was *World Crisis* by Winston Churchill [the book recommended as the best study of war and deterrence and its failure, by Herman Kahn in *On Thermonuclear War*]."

(Kay Halle quote source: Robin Cross, "JFK: A Hidden Life", Bloomsbury, London, 1992. Robin Cross's JFK book also points out that Kennedy "had always been a supporter of a vigorous defense policy. In 1948-9 he had attacked the Truman administration over the economies it had made in the defense establishment, advocating an air force of 70 groups, rather than the 55 groups proposed ... in the 1950s, he had urged the re-arming of Europe, if necessary with US help ... In the

Senate in the summer of 1954 he had opposed the Eisenhower administration's reduction in the size of the army ... In May 1955 ... he claimed that the administration had 'guessed short' on the military strength of the Soviet Union ... It was by this consistent route that in 1958 Jack Kennedy arrived at the momentous discovery of the 'missile gap', which was to provide one of the principal themes of his 1960 presidential campaign." Kennedy was on the same page as Kahn. In 1957, America had no proof-tested ICBM, just the 3,000 mile range Jupiter IRBM, while the Russians had successfully tested ICBMs the rockets of which successfully launched the first satellite, Sputnik, on 4 October 1957. Although by putting Jupiter IRBMs into Turkey America could cancel out the small ICBM "missile gap", there was concern that just a few Russian ICBM nuclear blasts over American cities could wipe out Western Cold War resolve, as had happened at Hiroshima and Nagasaki. When elected, Kennedy reversed Eisenhower's civil defense policy, as well as increasing the Minuteman ICBM order by 75%, the Western Europe tactical nuclear weapon stockpile by 60%, and the total number of American nuclear weapons by 100%, in an early effort at bankrupting the Russians with an arms race; a policy abandoned for a time after the Vietnam disaster, but re-instigated in the 1980s by Reagan with the desired effects.)

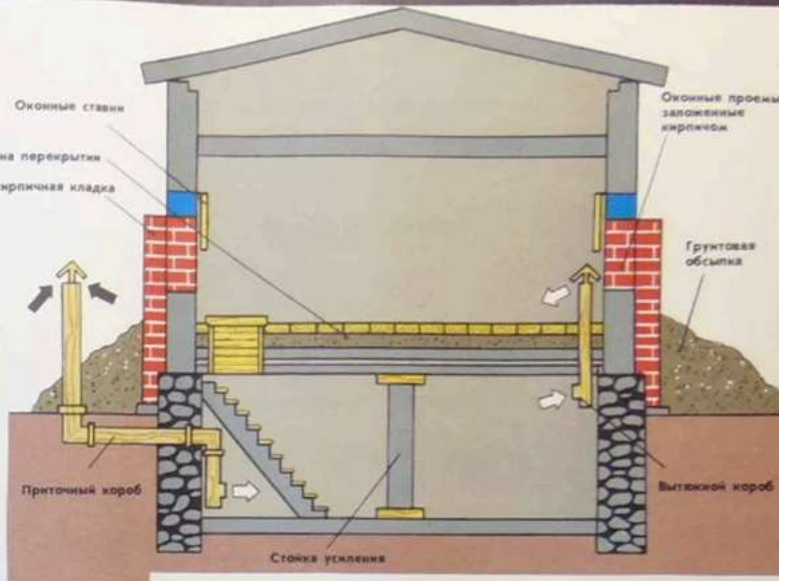
ЗАЩИТНЫЕ СООРУЖЕНИЯ ГО

Противорадиационное укрытие — сооружение, обеспечивающее защиту людей от ионизирующих излучений при радиоактивном заражении местности и светового потока, частично от ударной волны и проникающей радиации (в том числе и от нейтронного потока), а также от непосредственного попадания на кожу и одежду людей радиоактивных, отравляющих веществ и бактериальных средств



ПРОТИВОРАДИАЦИОННОЕ УКРЫТИЕ ИЗ ЛЕСОМАТЕРИАЛА С ПЕРЕКРЫТИЕМ ИЗ ЖЕЛЕЗОБЕТОННЫХ ПЛИТ

ПОГРЕБ, ПРИСПОСОБЛЕННЫЙ ПОД УКРЫТИЕ



ПОДВАЛЬНОЕ ПОМЕЩЕНИЕ, ПРИСПОСОБЛЕННОЕ ПОД ПРУ

Убежище — сооружение герметического типа, предназначенное для защиты укрывающихся в них людей от всех поражающих факторов ядерного взрыва, отравляющих веществ, бактериальных средств, а также от высоких температур и вредных газов, образующихся при пожарах

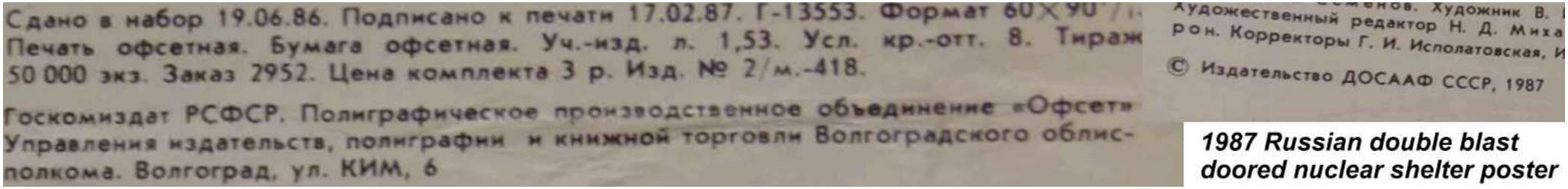
1 — защитно-герметическая дверь; 2 — тамбур; 3 — герметическая дверь; 4 — воздухозаб.; 5 — место для дежурного; 6 — основное помещение; 7 — места для сидения и лежания; 8 — фильтровентиляционный отсек; 9 — аварийный выход; 10 — оголовок

УСТРОЙСТВО И ВНУТРЕННЕЕ ОБОРУДОВАНИЕ УБЕЖИЩА



Оружие массового поражения иностранных армий и средства защиты от него
(Комплект из 20 плакатов)

Рецензент М. П. Калинин
Автор С. Н. Семенов


Сдано в набор 19.06.86. Подписано к печати 17.02.87. Г-13553. Формат 60×90 1/8.
Печать офсетная. Бумага офсетная. Уч.-изд. л. 1,53. Усл. кр.-отт. 8. Тираж
50 000 экз. Заказ 2952. Цена комплекта 3 р. Изд. № 2/м.-418.

Госкомиздат РСФСР. Полиграфическое производственное объединение «Офсет»
Управления издательств, полиграфии и книжной торговли Волгоградского облис-
полкома. Волгоград, ул. КИМ, 6

Художественный редактор Н. Д. Миха
рон. Корректоры Г. И. Исполатовская, И

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1987 Russian double blast doored nuclear shelter poster

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"Most people, not unreasonably, think of conventional weapons as being less escalatory and thus more usable than nuclear ones. But today's low-yield nukes—20 kilotonnes of explosive power, roughly Hiroshima-size—can be delivered with extreme precision and less collateral damage. "The line between low-yield tactical nuclear weapons and precision-guided conventional weapons in terms of both their operational effects and perceived impact is blurring," says CNAS." - *If a China and America war went nuclear, who would win? After 45 days of conventional fighting nukes would be tempting, wargamers suggest,* The Economist, Aug 22nd 2024, https://www.economist.com/asia/2024/08/22/if-a-china-and-america-war-went-nuclear-who-would-win


ЗАЩИТНЫЕ СООРУЖЕНИЯ ГРАЖДАНСКОЙ ОБОРОНЫ
ПРЕДНАЗНАЧЕНЫ ДЛЯ КОЛЛЕКТИВНОЙ ЗАЩИТЫ ЛЮДЕЙ ОТ ОРУЖИЯ МАССОВОГО ПОРАЖЕНИЯ
1981 dated USSR cold war poster: "Protective structures of civil defense"
УБЕЖИЩА
Встроенное убежище (в подвале здания)
Отдельно стоящее убежище (вне здания)
В убежищах в мирное время могут размещаться предприятия торговли, общественного питания, гаражи и др.
ABOVE: double blast doors shelter
ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ
Противорадиационное укрытие из сборного железобетона
Подвал, приспособленный под противорадиационное убежище
Противорадиационное укрытие из лесоматериалов
ПРОСТЕЙШИЕ УКРЫТИЯ
Открытая щель
Перекрытая щель

"*People May Not Care Simply Because They Do Not care.* ... The following (paraphrased) quotations are typical of the bureaucrat or decision maker who simply cannot imagine that his safe, snug world can really be dangerous. (The quotations are not exclusive. The determined do-nothing advocate will go through each in turn.)

1. The problem is hypothetical. You cannot prove that it exists. There is no need to get hysterical.

2. The problem is there, but there are many other problems. In your parochialism [limited views] and naivety, you have gotten hysterical. We have known about this problem for some time and we are not excited. Why are you?

3. The problem is there. It is insoluble. (Or, it is too late to do anything.) For God's sake don't rock the (political or public relations) boat. [*This is based on Kahn's dealings with people like his boss at RAND Corporation, just prior to his leaving to found the Hudson Institute*.]

The key words in the above are hypothetical, parochial, naive, and hysterical. That is, any specialist who raises a problem in his specialty is accused of being hypothetical and parochial, of not taking a practical over-all view. ... I can remember an occasion when I was discussing with one of these critics what seemed to me like a problem approaching potentially crisis proportions. He insisted that I was comparing hypothetical Soviet programs with hard American programs. I pointed out with some asperity that the Soviets up to that time had refused to allow our staff access to their records; naturally we would have some trouble proving that these programs existed and would actually meet the hypothetical dates. On the other hand, our staff did have access to U.S. data, so it was easy to show that our counter programs were not as firm as advertised. ... A typical hypothetical possibility is illustrated by the ominous possibilities for Hitler-type blackmail tactics created by the waning of our Type II and Type III Deterrence capability" - H. Kahn, On Thermonuclear War, pp347-8.

"There is a great deal of worry today that the Russians may make impressive gains utilizing only 'ambiguous challenges', without presenting us with any direct challenges. ... Their success to date in using 'ambiguous challenges' should be nothing to what they could do if they could afford and desired to be unambiguous. ... I think we can expect much firmer, confident and imaginative behavor, if not audacious and reckless conduct, from Khrushchev and his successors that we had from Stalin [a prediction that was confirmed by the 1961 Berlin Wall, 50 megaton test and the 1962 Cuban missiles crisis, etc.]" - H. Kahn, On Thermonuclear War, 1960, p348

"As the picture of horror of a modern thermonuclear war grows, we tend to ... *we emphasise the impact of our capabilities on the enemy's mind rather than on his body [italic emphasis is Kahn's own].* ... Type I Deterrence is the deterrence of a direct attack [Dulles' massive retaliation]. ... Type II Deterrence is defined as using strategic threats to deter an enemy from engaging in very provocative acts [e.g. invasion of Poland 1939, invasion of Belgium 1914, invasion of Ukraine 2022] ... Type III Deterrence might be called 'tit-for-tat' [e.g. Kennedy's decision to resume USA nuclear tests in 1962 in response to Russia's 50 megaton test in late 1961, etc.]." - Herman Kahn, *On Thermonuclear War,* 1960, p126. Regarding "knockout blow" propaganda scams in the media/politics, Kahn on p350 argues that the same delusional lie occurred before each major war, including WWI and WWII, both to sell the war to the public and to justify not planning for a long-duration war of attrition which seemed "defeatist". For example, mass media "pacifist" morons believed and hyped that, prior to WWI: "interdependence of nations was so great that the sheer interruption of normal commerce would cause a collapse after a few weeks or months in much the same way that people argue today that if the A country (big cities) is destroyed, the B country (small cities, rural areas) must also necessarily collapse [after a countervalue nuclear strike on cities]. Therefore, almost everybody expected the war of 1914 to be short ... the famous Schlieffen Plan ... called for them to destroy the French in about 6 weeks, then move their army to the Russian front and destroy the Russians in the next few weeks... [Hitler in 1939 simply aimed to repeat this, dismissing Schlieffen Plan's failure in WWI as sabotage from internal enemies of the state]." (Quote from Kahn, OTW, p350.)

a Statement of Policy

The Campaign for Nuclear Disarmament seeks to persuade people that atomic and similar armaments are totally wrong and should be abolished, and it has no other aim. But its members believe that mere vague condemnation of atomic weapons is not enough, that equally vague talk of agreements between the nuclear powers is not enough, and that some definite action must be taken. The British Government should announce its intention to abolish these armaments and should then proceed to do so, at a given date, whatever other nuclear powers may decide; it should if necessary act unilaterally. One nation, able to produce these weapons, should set other nations an example by deliberately challenging the hysterical fear that is behind the nuclear arms race. Every argument used by Britain to excuse her possession of these armaments can be used by other countries as a reason for acquiring them. And Britain cannot be adequately defended by atomic armaments. To retain them, to keep on manufacturing them, at a cost that menaces our whole economy, is merely to play an idiotic game of bluff. And the mere existence of these nuclear arms, threatening a world catastrophe, is not only wasting money badly needed elsewhere, and transforming every East-West disagreement into a crisis, but is also having an

campaign for Nuclear disarmament

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extremely bad psychological effect upon peoples, especially the young. No real progress is possible until the atomic threat has been completely removed.

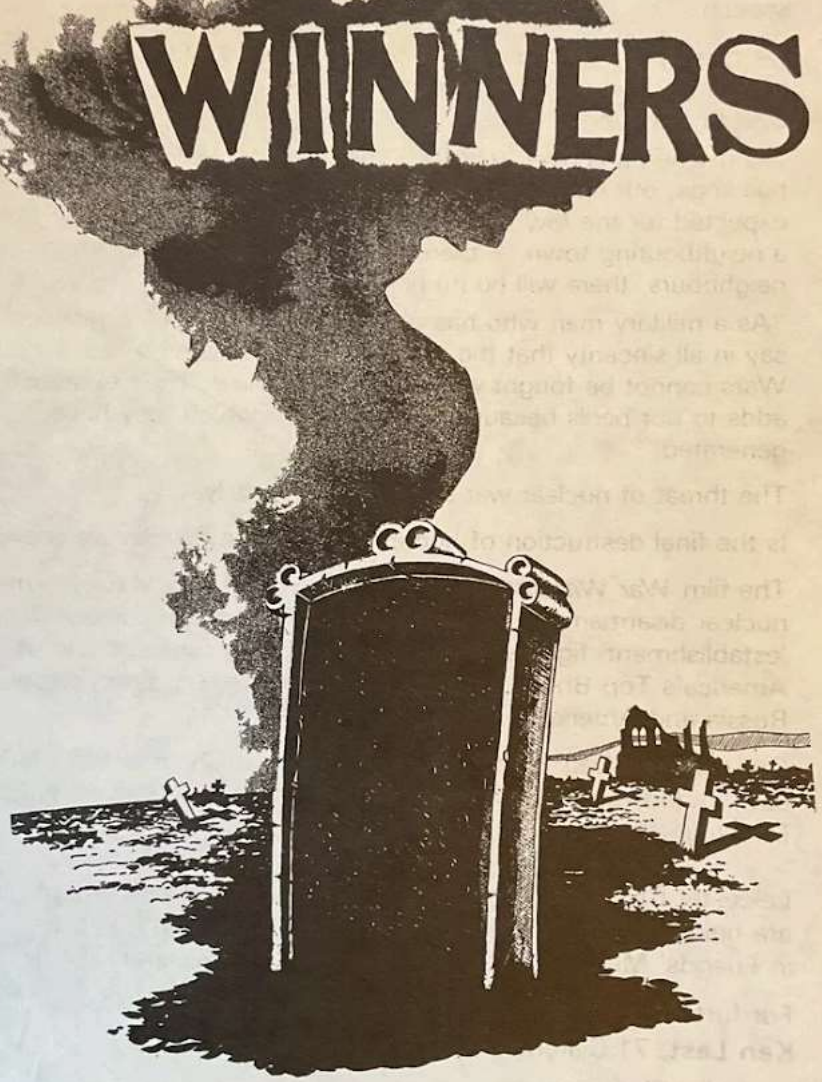
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WAR WITHOUT WINNERS



Leicester Campaign for Nuclear Disarmament

PUBLIC MEETING: TUESDAY ~~14th OCTOBER 7.30 p.m.~~

Charles Wilson Building, Leicester University

Film: *War Without Winners* **Speaker:** Dan Smith, National CND *Questions and Discussions*

A few months before he died, Lord Louis Mountbatten, whose military experience was almost unrivalled, said in a little-known speech:

"A new world war can hardly fail to involve the use of nuclear weapons. Such a war would not drag on for years. It could be all over in a matter of days.

"And when it is over, what will the world be like? Our fine great buildings, our homes, will exist no more. . . . No help can be expected for the few mutilated survivors in any town to be sent fro a neighbouring town – there will be no neighbouring towns left, n neighbours, there will be no help, no hope. . . .

"As a military man who has given half a century of active service, say in all sincerity that the nuclear arms race has no military purpos Wars cannot be fought with nuclear weapons. Their existence only adds to our perils because of the illusions which they have generated."

The threat of nuclear war seems to grow daily.

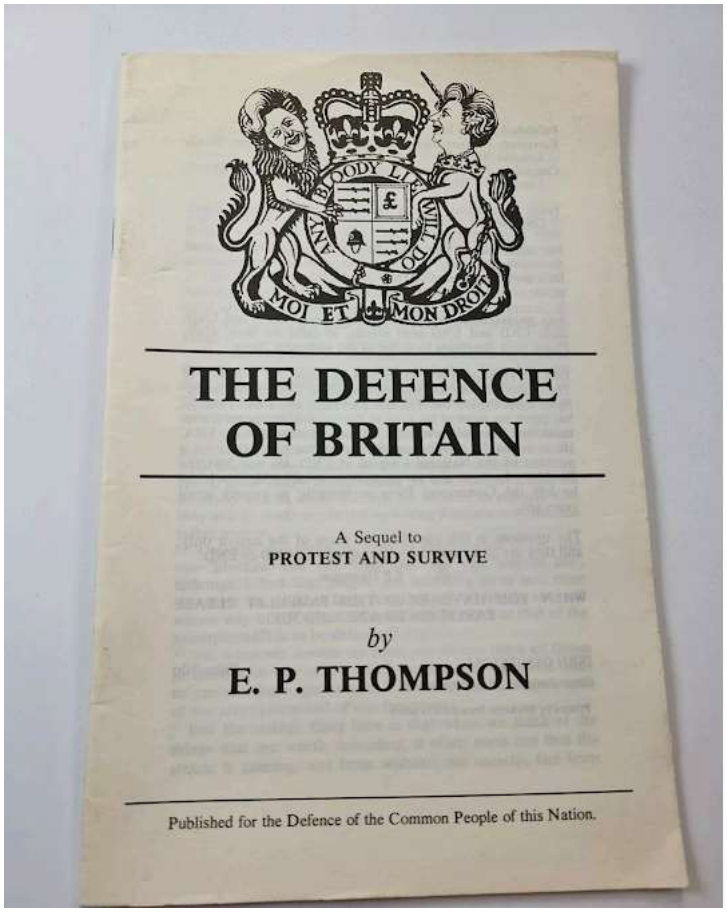
Is the final destruction of humanity inevitable, or can we prevent it?

The film *War Without Winners* is a powerful appeal for internationa nuclear disarmament, with statements from such eminent American 'establishment' figures as Admiral La Roque, formerly one of America's Top Brass, as well as opinions from ordinary people in Russia and America.

Our speaker, Dan Smith, is one of the Vice-Chairmen of CND, and contributed to the recent BBC Panorama programme on Nuclear Disarmament.

Leicester CND campaigns actively for nuclear disarmament. Meeting are held on the third Tuesday of every month, at 7.30 p.m., in Friends' Meeting House, Queen's Road, Leicester.

For further information write to the Secretary:
Ken Last, 71 Clarendon Park Road
or to the Chairman:
Peter Wright, 12 Lytton Road (Telephone



THE DEFENCE OF BRITAIN

A Sequel to
PROTEST AND SURVIVE

by

E. P. THOMPSON

Published for the Defence of the Common People of this Nation.

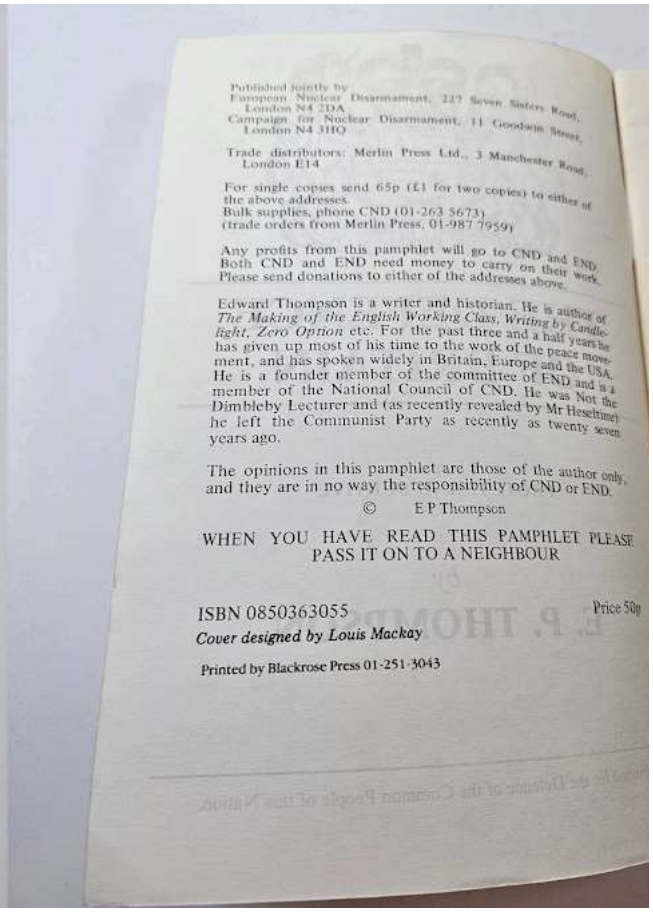


DANGER! DETERRENT AT LARGE!

A number of these ferocious deterrents have been kept as pets by Ill-advised and Unauthorised Persons (styling themselves as "TRUE PEACE-KEEPERS") in both the Western and the Eastern parts of our Globe. When kept in Captivity they do little Harm, provided that they are fed each day with Large Quantities of the Peoples' Taxes, Jobs, Hospitals and Schools. Yet after a little while they grow weary of Captivity, and sting themselves into a Fury with the Poisonous Venom in their own Tails.

It is feared that one such DETERRENT has now escaped and is already ravaging the Western Parts of this Country. Farmers have already found the HALF-EATEN REMAINS of SEVENTY SHEEP and also (a lesser matter) the rotting carcases of more than half the councillors of NEWBURY TOWN, in the vicinity of GREENHAM COMMON. It is to be feared that the ENTIRE HOUSE OF COMMONS will be eaten alive by THE DETERRENT next week (unless it should prove to be inedible). There is no remedy, unless the entire Electorate doth, like one St. George, ride together to the polls, armed with the lance of its free votes, to slay this VENOMOUS BEAST.

REWARD—A FREE AND PEACEFUL ISLAND



Published jointly by
European Nuclear Disarmament, 227 Seven Sisters Road, London N4 2DA
Campaign for Nuclear Disarmament, 11 Goodwin Street, London N4 3HQ

Trade distributors: Merlin Press Ltd., 3 Manchester Road, London E14

For single copies send 65p (£1 for two copies) to either of the above addresses.
Bulk supplies, phone CND (01-263 5673)
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Any profits from this pamphlet will go to CND and END. Both CND and END need money to carry on their work. Please send donations to either of the addresses above.

Edward Thompson is a writer and historian. He is author of *The Making of the English Working Class, Writing by Candlelight, Zero Option* etc. For the past three and a half years he has given up most of his time to the work of the peace movement, and has spoken widely in Britain, Europe and the USA. He is a founder member of the committee of END and is a member of the National Council of CND. He was Not the Dimbleby Lecturer and (as recently revealed by Mr Heseltine) he left the Communist Party as recently as twenty seven years ago.

The opinions in this pamphlet are those of the author only, and they are in no way the responsibility of CND or END.

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WHEN YOU HAVE READ THIS PAMPHLET PLEASE PASS IT ON TO A NEIGHBOUR

ISBN 0850363055 Price 50p

Cover designed by Louis Mackay

Printed by Blackrose Press 01-251-3043

"To understand this attitude ... in 1961 Herman Kahn's 1960 radically innovative book *on the nuclear deterrence of war in general (not merely "massive retaliation" to deter all-out "doomsday" attacks, as was the previous policy by Dulles)* was "reviewed" by controversial lawyer James Roy Newman in Scientific American. Newman, a complete bastard to Britain - he drafted the notorious and paranoid McMahon 1946 US Atomic Energy Act, which illegally and unilaterally ended Britain's wartime agreement to continue postwar collaboration on nuclear energy - hadn't read Kahn's book (any more than he had read the vital Churchill-Roosevelt Hyde Park agreement for post-war continuation of nuclear collaboration of September 19, 1944 or consulted the UK government on the topic, when drafting the quack Atomic Energy Act passed by Congress in 1946!), and just scanned the first part of Kahn's On Thermonuclear War briefly and taken some quotes and tables out of context to criticise (despite the title, its purpose is the credible deterrence of major provocations, not just the fighting of WWIII if deterrence fails). Moreover, he denied the existence of the author, because the publisher hadn't provided much biography! We don't need that kind of abuse from such bigots, do we?" - https://nigecook.substack.com/p/coming-soon



The explanation of the neutron bomb's invasion deterrent history in the 1958 low yield relatively clean "peaceful" Livermore nuclear explosives Dove and Starling is given by Samuel Cohen in his 6 December 1984 interview, conducted by Robert Del Tredici in Beverley Hills, California (published on pages 157-9 of his 1987 book, *At Work in the Fields of the Bomb,*):

"I was in the Efficiency Group at Los Alamos. Our job was to figure out the yield of the bomb that was burst over Nagasaki. ... On the evening of Hiroshima, when Oppenheimer was describing in very crude terms the catastrophe that had taken place over that city, the scientists who were listening to him were a bunch of howling savages, embullient beyond imagination, as pleased as punch ... Oppenheimer is rightfully called the father of the atomic bomb, but equally rightfully he could be called the father of the tactical nuclear weapon because he did the first conceptual spadework for using nuclear weapons strictly in a battlefield way instead of just decimating cities in a holocaust [thus led to his legendary dispute with Teller who just wanted massive retaliation H-bombs as a deterrent and bargaining chip for peace with Russia] ... He professed to be sufficiently guilt-ridden and aghast and appalled over the bombings of Hiroshima and Nagasaki that he never wanted that to happen again. So he recommended we design lower-yield weapons that wouldn't wipe out cities ... The basic concept is to be able to have a battlefield nuclear weapon that won't have all these nasty side effects ... If it's going to be used to get what we call the 'separation of effects', in other words, to get rid of the blast and heat [collateral damage to civilians], it not only has to be air burst, but it has to be burst high ... between 2,000 and 3,000 feet. ... it's a kind of micro-mini hydrogen bomb. ...

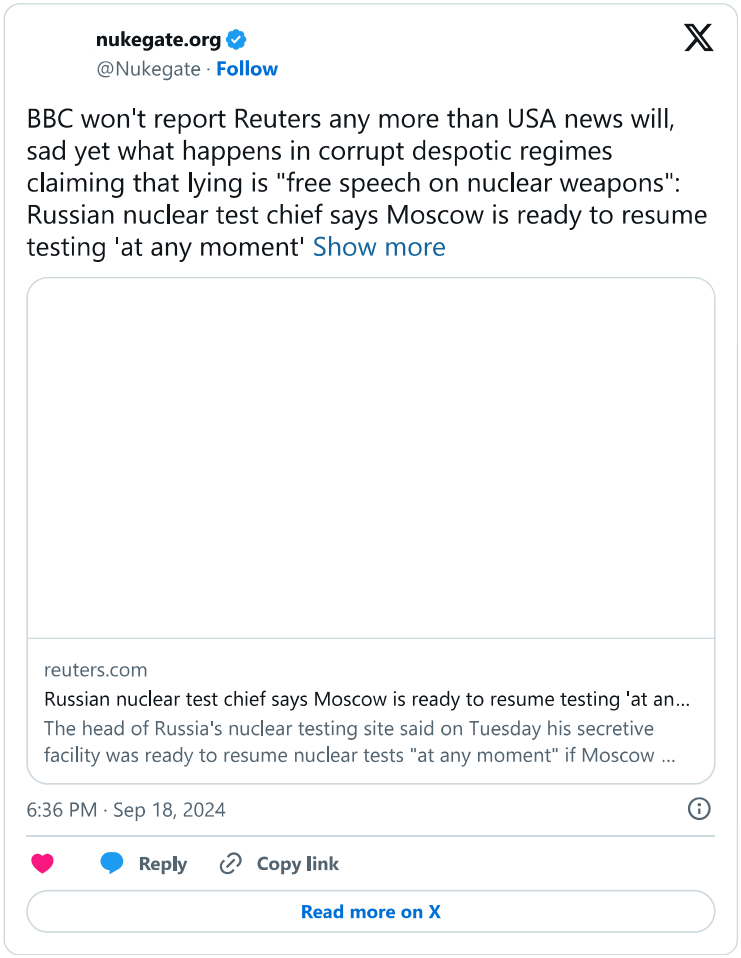
"I'd had the idea for the neutron bomb about 8 years before I figured out how to put it together. I put together the actual concept in the summer of 1958. It came about purely by accident when I visited the Livermore Laboratory in the spring of 1958. I asked if anyone had any new ideas going around, and they said they really didn't, though they had begun work on some peaceful nuclear explosives. And the head of the division said, 'Before you go home, you ought to take a look at these', and he showed me designs for some of the peaceful devices. And there they were: the neutron bomb characteristics. One of those designs was called Dove. Dove, by the way, for 'Dove of Peace'. ... Well, there were two, Dove and Starling; both derived the major share of their energy from fusing deuterium and tritium. ... The question I asked was, 'How many neutrons come out of this thing?' They made a few back-of-the-envelope calculations and the answer was: a hell of a lot. Then I took these calculations home and made my own calculations about the military effects of such a weapon, and, voila, the neutron bomb! Then I put together the military concept of how to use this bomb and went off on a big sales campaign. ...

"Ever since Day 1 we've patterned our nuclear war-fighting strategies after Hiroshima and Nagasaki. ... So what we're basically proposing here [using conventional Teller or Dulles "massive retaliation" MAD mutual-assured-destruction H bombs-on-cities crap] to deter war is the threat of our own suicide. ... it's all based on the premise that if we cross that nuclear threshold one more time, we'll bring on the beginning of the end. So you get people like Jonathan Schell [author of "Fate of the Earth" which lies that the 15 megaton Bravo test blinded everyone at Rongelap and that radiation can't be stopped easily by simple earth covered shelters proved at nuclear tests] and Carl Sagan with the idea of nuclear winter and everything else. It's Armageddon. I don't find their ideas credible, and I'll tell you why: because in order to get these results from using nuclear weapons against cities, you have to have nations willing to use them that way. ... You know what the United States has to do if it wants to survive? It has to accept the fact that there will probably be a nuclear war, and it has to prepare to fight it and win it. ... It's been U.S. national policy for more than a quarter of a century that nuclear weapons are actually unusable weapons. That's horseshit, and you can quote me on that. ... Let the allies develop their own neutron bomb. As a matter of fact, let's sell it to them! They should have discriminate weapons for their own self-defense. The United States doesn't need to take on the burden of defending all the rest of the world. That [the UK policy of 1914 regarding Belgium's invasion and 1939 regarding Poland's invasion, not to mention 2022 regarding Ukraine's invasion] is in fact the best way of getting into a nuclear war ..."

The technical history of Livermore's development of enhanced-neutron tactical nuclear weapons goes back to a study of lightweight, thin H-bomb casings by Dr Herbert York, discussed in detail below with regard to recently declassified data on the designs of two American H-bombs of roughly similar physical size but different mass, composition and yield: the W47 and the B28. York showed that the pressure and duration of the x-ray energy coupling causing the fusion stage's compression force are both functions of the case thickness. So if you reduce the outer casing thickness to make the bomb lighter, you have less compression force and it lasts a shorter period of time. To ensure a successful fusion burn in this situation, you have to reduce the amount of dense material like uranium in the fusion stage and replace it with easier to compress fusion fuel. This occurred in progressive Livermore designs with smaller sizes and lighter casings during the 1950s, starting with a device called Linda, then Flute, then Piccolo. These had thin oralloy (highly enriched U235) pushers (3.8mm thick for Piccolo), but clean versions with lead pushers in place of U235 were designed, and the combination of the high percentage of fusion yield with the thin pusher and outer casing gave the enhanced neutron Dove design.

(The paragraph above about the link between speed of fusion burn and tamper thickness in low yield neutron bomb design is not speculative, and is confirmed not just by the recent book by Tom Ramos, but earlier by nuclear weapons effects expert Charles S. Grace of the Royal Military College of Science in his 1994 *Nuclear Weapons Principles, Effects and Survivability* on 23: "It is possible to produce comparatively low-yield weapons with only a small fission trigger to initiate a fusion stage. **If it is designed so that the nuclear reactions proceed as fast as possible, the tamper need not be very thick, and a large proportion of the energetic fusion neutrons will escape**." Grace around that time very kindly responded to a letter from me and provided photos of British military equipment exposed at the UK nuclear tests for my book, *Nuclear Weapons Effects Theory*, as well as telephoning me, which was helpful. He was a very powerful advocate of the neutron bomb to deter invasions, writing a letter to the New Scientist to debunk anti-nuclear bomb propaganda. He did a lot of research using Atomic Weapons Establishment Aldermaston facilities on simple protection against nuclear attack, and his book also points out that Glasstone and Dolan are completely misleading regarding thermal effects, stating on page 41: "Adequate protection for the skin greatly reduces the risk of thermal casualties. ... wearing a well-designed

NBC suit over combat clothing, and a respirator and gloves ... the thermal energy from [1 kiloton yield] tactical weapons needed to cause extensive second-degree burns is about 1.3 MJ/m^2 [i.e., 31 cal/cm^2 since 4.186 J = 1 Calorie, and 1 m^2 = 10^4 cm^2; for bare skin only 160 kJ/m^2 or 3.8 cal/cm^2 is needed; thus there is a huge difference between Glasstone and Dolan and the actual risk, and Grace points out that if clothing ignites, people can simply roll out the flames on the ground, without getting burned!]." Grace's book also gives the military effects of nuclear weapons - ignored entirely by Glasstone and Dolan - including photos of vehicles exposed at 370 m range to 10 kiloton Totem-1 nuclear test on a 100 ft high tower in Australia in 1953. A side-on tank was not overturned by 230 kPa peak overpressure, but was displaced 2.5 m with a peak acceleration of 30g. The mudguards and trailer were damaged, but: "After the burst the tank was able to be driven off, and its gun was fired after sand and debris had been removed from the barrel. The lighter scout car was beyond repair. Had crews been in the vehicles they would have received a radiation dose of around 100,000 cGy [R] ... they would have been incapacitated virtually instantaneously.")





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This Russian State TV Channel 1 broadcast on a proposed nuclear test on a fake "plywood" based city to make the fake plywood burn for YouTube viewers, is a load of complete CND anti-nuclear propaganda crap. George R Stanbury of UK Home Office Scientific Advisory Branch civil Show more

Anton Gerashchenko ✓ @Gerashchenko_en

Russian propaganda suggests building a mock-up of London and New York (other large cities well) at the nuclear test site at Novaya Zemlya (Arkhangelsk region of Russia) and hit them with nuclear weapons.

I don't really know if it's treatable.

11:41 PM · Sep 16, 2024

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"Foreign politics demand scarcely any of those qualities which are peculiar to a democracy; they require, on the contrary, the perfect use of almost all those in which it is deficient. ... a democracy can only with great difficulty regulate the details of an important undertaking, persevere in a fixed design, and work out its execution in spite of serious obstacles. It cannot combine its measures with secrecy [spying problem plus whole notion of democracy requiring voters to be informed] or await their consequences with patience. These are qualities which more especially belong to an individual or an aristocracy; and they are precisely the qualities by which a nation, like an individual, attains a dominant position. ... The mass of the people may be led astray by ignorance or passion ..." - Alexis de Tocqueville's *Democracy in America* 1835 (Vintage NT 1954 ed, v1, pp243-5, as quoted by H. Kahn, OTW, p579; note that Kahn's full quotation backs the notion of elitism aristocracy as the solution, aka the clan dynasties in USA politics such as the Kennedy and Bush political families. On page 407 of OTW, Kahn also appears to back elitism in discussing how von Mannstein was able to bypass jobsworths in the General Staff and get a direct meeting with Hitler to modify the Schlieffen Plan's to outflank the new French Magoniot Line defenses by invading through the Ardennes Forest with the latest Panzer tanks; Hitler had many defects but at least he was prepared to listen seriously to "crackpot" sounding ideas from the lower ranks and implement them, unlike so many openly fascist "top dogs" today).

"There seems to be little point in discussing the view that finds a solution in a totally disarmed world. ... The violator would then have an incredible advantage if the agreement ever broke down ..." - Herman Kahn, *On Thermonuclear War,* Princeton Uni. Press, 1960, page 5. Kahn adds added that the world of 1914 and 1939 was non-nuclear, there was an international ban on chemical weapons (the Hague Convention of 1899) prior to WWI in which chemical weapons were used without restraint, and that there was agreement amongst experts that WWII would start with a gas knockout blow against cities, when in fact no gas was ever dropped on cities during WWII (pesticide Zyklon B, crystals which emits non-persistent hydrogen cyanide gas on exposure to the air, was used in gas chambers but the Nazis never dropped any of their 12,000 tons of tabun nerve agent on cities thanks to retaliation risks and the universal issue of gas masks). So disarmament propaganda was just that, lying blathering by politicians to earn "peace prizes".

"It would be disastrous to have a conspicious gap in the spectrum of deterrents and capabilities [strategic and tactical to cover all kinds of dangerous provocations]. For example, when President Eisenhower remarked at a press conference that it was unthinkable that he would call out federal troops to enforce federal law ... some Southerners immediately did something to make it thinkable [Eisenhower ordered the 101st Airborne Division of the U.S. Army to Little Rock's Central High School to reinforce Arkansas' National Guard in allowing 9 black students to enroll at the school in 1957]." - Herman Kahn, On Thermonuclear War, p286. The point is, saying something is "unthinkable so we don't need to prepare for it" is not cost-effective when it encourages and invites the enemy to invade and provoke you. Lying blathering peacenik enemy collaboration always backfires by inviting aggression. (Even Trump had this problem, when some of his supporters misinterpreted his peaceful speech - questioning why the postal ballots showed higher support for Biden than the polling station in-person votes - and invaded the Capitol on 6 January 2021.) If you want to deter evil, you have to avoid ambiguity and to be open and also clear that nothing is "unthinkable" and state in advance precisely what you will do in any eventuality, so as to make deterrence unequivocally effective. *You want the enemy to be clear what they will have coming to them if they provoke you:* "with the record of the 1930s plainly before us, we should all be able to realise that it is possible for all these kinds of deterrence to be strained." - Kahn, OTW, p286.

No wonder the Leninist lawyer James Roy Newman of the "elitist communist" Scientific American hated Kahn in his "review"! I first read Kahn's On Thermonuclear War in 1990, and have just finished re-reading it in September 2024 due to the Ukraine war. My view of the book is now very different to the notes I made in 1990 when reading Kahn during the writing of my own unpublished August 1990 dated manuscript *Nuclear Weapons Effects Theory*. The basic problem is that Kahn has two theses in one volume. The first 310 pages of On Thermonuclear War debunks populist nuclear weapons and war myths, such as fallout gamma rays and strontium-90 in food killing everyone; the second part, pages 311-651 is an analysis of the history of war and extrapolations of that history to various kinds of deterrence and nuclear war. As his preface says (page x): *"This book is dedicated to the goal of anticipating, avoiding, and alleviating crises." (Italic emphasis is Kahn's own.)* The problem with Kahn's On Thermonuclear War is precisely the same as that with Glasstone's Effects of Nuclear Weapons: jumbled up presentation (if you are discussing one type of nuclear explosion, you need to discuss the effects that type produces, not separate effects into different chapters, so readers are misled and think heavy fallout occurs from air bursts, etc.,) and you need to show how deterrence of certain kinds of nuclear attack even within a nuclear war is necessary to retain "bargaining chips", "cities as hostages", etc. Otherwise 100% of readers do what journalists do with "Nukemap" and simply assume the entire enemy stickpile is used in a single knockout blow on cities, in which 100% of people unprotected, by even "duck and cover"! This increased casualties by a factor of 120 in Hiroshima, and is where you get the 120 fold exaggerations of nuclear war casualty predictions from. By the omission of key (secret classified) data on neutron bombs to deter invasions in the first place, or survival of people and vehicles in simple, cheap trench shelters at nuclear tests, for example, you depart 180 degrees from reality.

"But how many murders are they [lying journalists, politicians, fellow-travelling Western nuke designers who won't disclose the truth to the media] responsible for? Basically, nuclear deterrence using tactical nuclear weapons to deter the invasions that set off both World Wars, i.e. the invasion of Belgium in 1914 by concentrated force and of Poland in 1939 by concentrated force (from the East by Russia and from the West by Germany), could have prevented many millions of deaths since 1945, but evil folk prevented this, wanting war to continue. ... Hiroshima was entirely vaporized by a nuclear explosion on 6 August 1945, says CND. In that case, this US Air Force film of the slight scorching on otherwise undamaged materials, proving the effectiveness of “duck and cover” for shielding, is fake news. But it’s not. What’s fake news is everything every published on nuclear weapons effects by Bulletin of Atomic scientists, Scientific American, all newspapers, and all TV shows on the subject ... In fact, Hiroshima casualty data published [in the massively-effects-exaggerating] Glasstone book “The Effects of Nuclear Weapons” (1962-77 editions) proves that being indoors in the lower floors of a concrete building reduces the LD50 radius from 1.3 miles in the open to 0.12 miles for lower floors of concrete buildings. Since area is proportional to radius squared, this means a protection factor of 120 for Hiroshima burst conditions (16 kt, 600m altitude). This shielding factor would for a densely populated modern city reduce 500,000 (half a million) killed for people outdoors totally unshielded to “just” 4,000 killed indoors on the lower floors of modern city concrete buildings! Er, this result of 4,000 killed just happens to be precisely the number mentioned by the Independent newspaper article (quote above!) of pensioners murdered by cold and starvation due to financial destitution due to Sir Keir Starmer’s “tough decision” to end winter fuel allowances, in order to pay massive salary rises to public sector employees." - https://nigecook.substack.com/p/another-assassination-attempt-on

Kahn makes a further essential point about "secrecy" (*there ain't any secrecy when the other side has spies like Fuchs*) covering up **alleged gross delusional failings in Western nuclear weapons design, effects and capabilities** on page 384 of On Thermonuclear War, where he quotes extensively from chapter 6 "Torpedoes" of Rowland and Boyd's *US Navy Bureau of Ordnance in World War II* (published by the US Navy), proving how the secrecy of US torpedo design, development, testing and stockpiling led to tragic groupthink delusions of supremacy and of having the best torpedoes in the world, that were only debunked in actual combat during the 1941-3 period of WWII: "As each defect was exposed, the morale of the submariners who risked their lives to take the war to the enemy suffered, the enemy was given further respite ... the problem was compounded by the Bureau's reluctance to accept the fleet evaluation of its weapon. This reluctance was born ... from misplaced confidence in its own past work. ... Security, a necessary concern of the armed forces, became such a fetish that measures designed to protect a device from enemy eyes actually hid its defects from those who made the regulations. Ironically, some of those defects were already known to the foreign powers who later became our allies or enemies. ... even when the torpedo exploded properly, it lacked the punch submariners desired. ... each defect concealed another ... The Bureau was reluctant to believe that the secret weapon long regarded as one of our greatest assets should turn out to be a liability." (Kahn gives many other similar examples of bureaucratic secretive nonsense backfiring even in WWI, in Chapter 8 of OTW. American Colonel Billy Mitchell of the American Air Force was the first to suggest paratroopers to get over enemy lines, and predicted a Japanese attack on Pearl harbor (he was demoted and then court martialled on the direct orders of President Calvin Coolidge). Tanks and gas are both treated in detail by Kahn: both were kept so secret that the military didn't have a clue about them when first used on the battlefield so their initial "factor of surprise" was lost and the enemy was given the chance to negate them after bungled first-use:

"The first use of tanks in September 1916 completely ignored the tactical and strategic ideas of the innovators and was carried out as a sort of field trial. ... The German *poison gas* story has some interesting analogies with the British tank story. This too had an uphill fight with the authorities. Again, even after the weapon had been developed the command did not wish to take the risk of using the untried weapon on a large scale, though the inventors urged it, until the military had developed some experience on the capabilities and limitations of gas warfare. It was first tried on April 22, 1915 and proved a tremendous tactical success. In fact, a five-mile gap was opened in the Allied lines, but the Germans were not prepared to exploit the opportunity. They were not really making an attack, they were just trying an experiment. The British reaction ... was very fast. ... Sir William Ramsay had guessed from the description of the battle reports that chlorine had been used and came to the War Office with a protective measure, some sample mouth-pads made of flannel or wool soaked in hyposulphite of soda. British women were asked to furnish 1,000,000 at once. Thanks to their help and Red Cross efforts, the necessary quantity came in several days. Within a fortnight, every man in the British army at the front was supplied with a rudimentary respirator. ... History is full of examples of impractical notions, or, equally important, notions that proved to be just fine but which were tested prematurely. ... The most spectacular military event of World War I, the development of two parallel lines of trenches ... while predicted by Bloch, came as a complete surprise. ... given the examples of such warfare in the American Civil War and the Sino-Japanese War - it is hard to see how military experts could have overlooked the possibility that the widespread availability of machine guns and barbed wire might result in static trench warfare, but the military planners on both sides completely overlooked the possibility [as they did for submarines blocking logistics supplies, depth charges, and particularly SAS type infiltration tactics to overcome trench warfare: French Captain Laffargue wrote a proposal for this which the Allies laughed at, but when a copy of the proposal fell into German hands, Ludendorff at once (quote from Captain G. C. Wynne on p357 of Kahn's OTW): "translated into German and issued as an official German training manual, eventually becoming the basis of General Ludendorff's textbook ... [leading to German implementation of the enemy's plan so] the Germans so effectively broke through the British position in March 1918, and the Chemin des Dames position in May ...". SO, UNLESS WE ARE TO REPEAT SUCH MISTAKES, WE MUST NOT ALLOW PETTY HUBRIS OF "JOBSWORTH BUREAUCRATS" TO BLOCK INNOVATIONS NEEDED TO WIN WARS!

UCRL-JC-117385
PREPRINT

Achieving Competitive Excellence in Nuclear Energy: The Threat of Proliferation; The Challenge of Inertial Confinement Fusion

John H. Nuckolls

This paper was prepared for presentation at the
American Nuclear Society Annual Meeting
New Orleans, Louisiana
June 20, 1994

In the late 1950s and early 1960s an inertial confinement approach to controlled fusion energy was explored at LLNL. In 1957 I was assigned the task of designing a fusion power plant driven by the explosion of a series of hydrogen bombs in a giant steam-filled hole in granite. Although this approach would eliminate the magnetic confinement system, the scale is very large, and the hydrogen bomb is initiated by a fission explosive. To eliminate the use of fission explosives and to greatly reduce the scale, I addressed two key questions:

- What is the smallest possible fusion explosion?
- How can such a small fusion explosion be ignited without a fission explosion?

The feasibility of very small fusion explosions follows from the fact that the thermonuclear burn rate is proportional to the density of the fusion fuel, and the fact that fusion fuels can be imploded to at least 1000 times normal density. The inertial confinement time is proportional to the characteristic dimension of the exploding system. Therefore, for a sphere, a thousand–fold increase in the density (and burn rate) makes possible a thousand–fold

A milligram of DT imploded to a thousand times normal density (200 g/cm^3 and ignited will achieve a 25% burn efficiency and a yield of about 10^8 J.

Only 10^4 J is required to compress 1 mg of DT to 200 g/cm^3, provided the DT is isentropically compressed to a Fermi degenerate state (this means that the thermal energy of the compressed DT must be a small fraction of the Fermi energy, which is several hundred electron volts at 200 g/cm^3). The fusion energy release from this milligram of DT is almost 10,000 times larger than 10^4 J, so that the compression is energetically "free." (<< the fusion energy)

The minimum ignition energy is also much smaller than the fusion energy. If the entire milligram–mass pellet at 200 g/cm^3 is heated to a 10 Kev ignition temperature, then the resulting fusion energy would be about 100 times larger than the ignition energy. However, less than 1% of the pellet needs to be ignited, since the radius of the compressed pellet is six times larger than the range of the 3.5–MeV α particle arising from the DT reaction. If $(1/6)^3$ ($\equiv$0.5%) of the pellet mass is heated to ignition, this critical–size hot spot will then initiate a burn wave which ignites the remainder of the pellet. For this pellet, the minimum required ignition energy is about 5×10^3 J. After compression, the ignition is also energetically "free."

The sum of the minimum energies required to compress and ignite the 1-mg pellet is 15×10^3 J, almost 10^{-4} of the roughly 10^8–J fusion energy release.

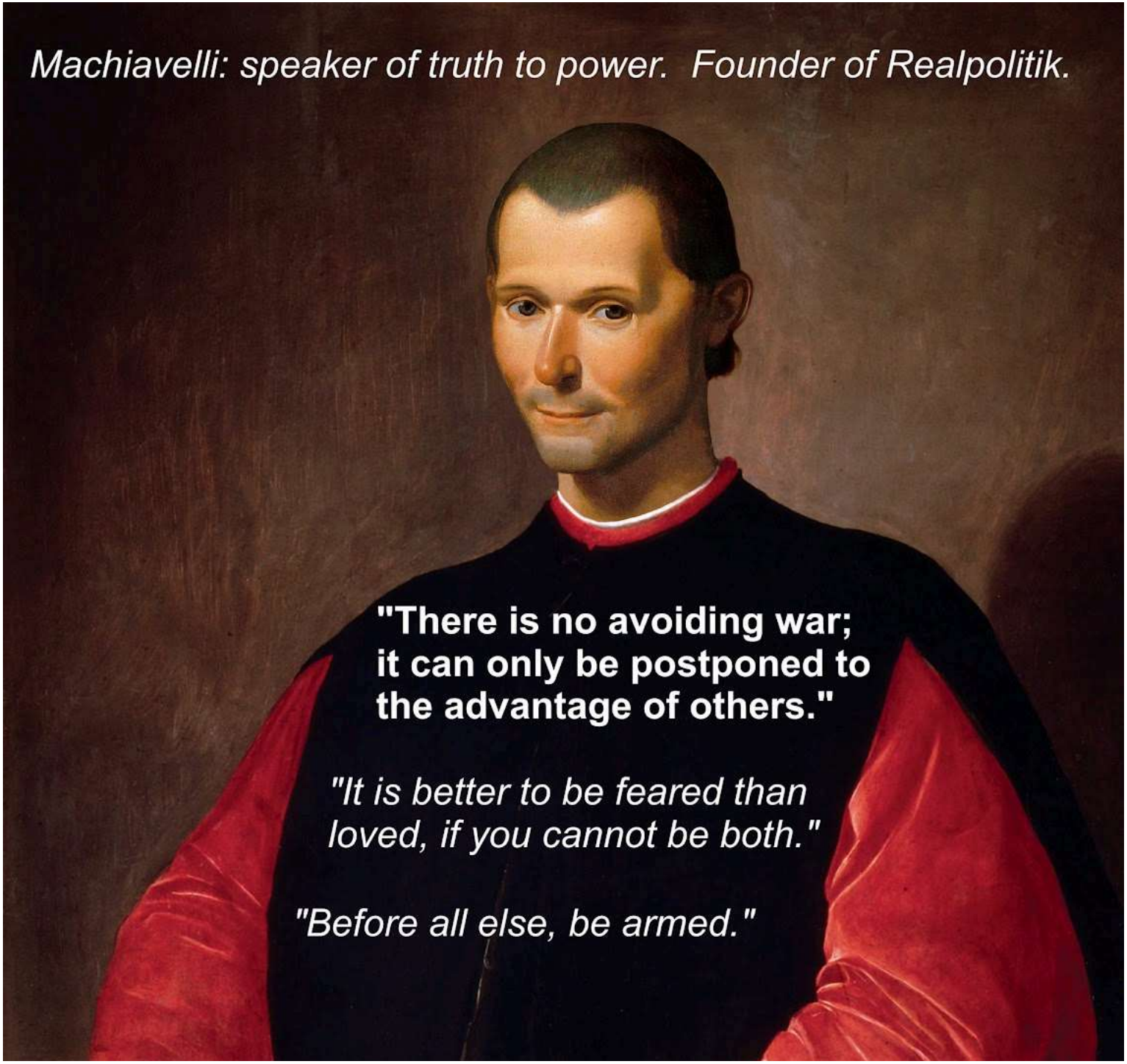
Because the fusion energy is so much larger than the minimum energy required for compression and ignition, an ablative implosion (which is typically 10% efficient) may be used to achieve both compression and ignition. However, because the velocity required for ignition (of a milligram) is roughly three times the velocity required to compress 1000-fold, the overall efficiency is reduced to 1%. Then the energy source must deliver 10^6 J to the target, and the efficiency of the energy source must be more than 10% for civil power applications.

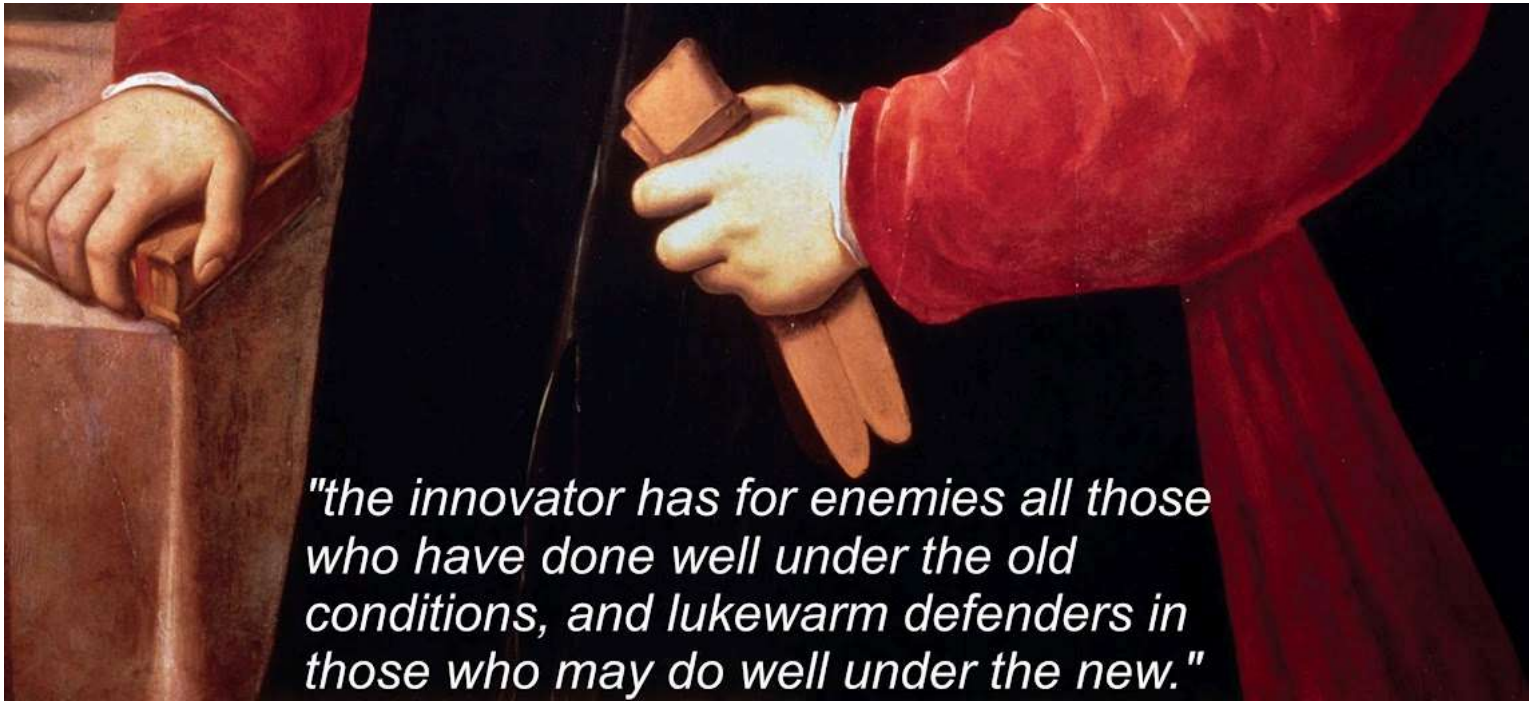
To meet these coupling requirements with the as yet unknown driver, I proposed in the late 1950s to adapt a powerful thermonuclear weapon concep invented by Edward Teller in the early 1950s. I proposed to "indirectly drive" the ablative implosion with thermal x-rays generated by rapidly injecting energy from the driver beam into a cavity which has high-Z walls and contains a DT pellet coated with a low-Z ablator. Re-radiation of thermal x-rays back and forth across the cavity rapidly reduces temperature gradients, and rapid ablation of the pellet surface by the x-rays generates the required implosion pressures while reducing the rate of growth of fluid instabilities. To prevent excessive thermal losses into the cavity wall due to the adverse

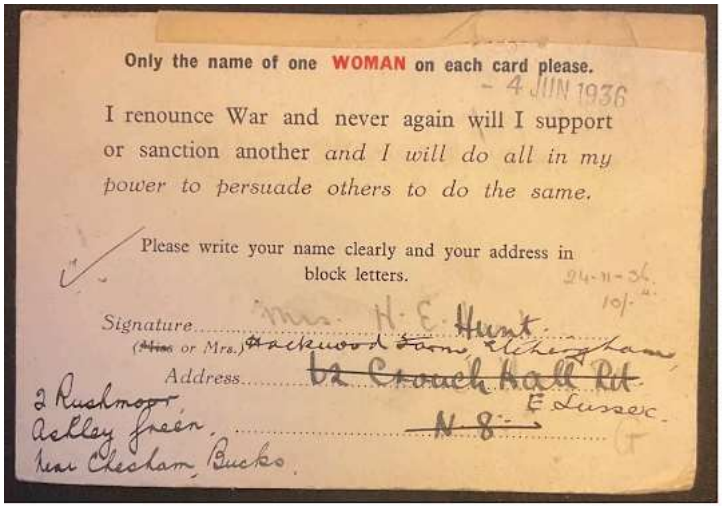
increase in the density (and burn rate) makes possible a thousand-fold reduction in the radius and a 10^6–fold reduction in the mass and fusion yield. Minimum–size fusion explosions can be achieved by imploding DT, the fastest–burning fuel, to very high densities.

To prevent excessive thermal losses into the cavity wall due to the adverse scaling of the surface to volume ratio as the cavity is made smaller, I decreased the cavity temperature and the average initial density of the imploding capsule.

ABOVE: Kahn was treated with the "shoot the messenger" reaction against Machiavelli, merely for speaking truth to power in 1960: "If the above deterrents are to work reliably, there must always be in the background the knowledge that if they did not, other kinds of deterrents or corrections would come in. It could be disastrous to have a conspicuous gap in the spectrum of deterrents and capabilities. For example, when President Eisenhower remarked at a press conference that it was unthinkable that he would call out federal troops to enforce federal law in the Southern states, some Southerners immediately did something to make it thinkable. Something similar may happen if he convinces the Soviets that he means what he says when he says that "war is preposterous." I suspect that many in the West are guilty of the worst kind of wishful thinking when, in discussing deterrence, they identify the unpleasant with the impossible. It is particularly hard to understand why this is so when almost all who write on this subject were adults during the later part of the Hitler era and presumably were educated in some of the ways in which all these types of deterrence can be strained." - Herman Kahn, *On Thermonuclear War*, page 286. Will the left ever learn facts from history?


Machiavelli: speaker of truth to power. Founder of Realpolitik.
"There is no avoiding war; it can only be postponed to the advantage of others."
"It is better to be feared than loved, if you cannot be both."
"Before all else, be armed."


"the innovator has for enemies all those
who have done well under the old
conditions, and lukewarm defenders in
those who may do well under the new."



Only the name of one **WOMAN** on each card please.

- 4 JUN 1936

I renounce War and never again will I support or sanction another *and I will do all in my power to persuade others to do the same.*

Please write your name clearly and your address in block letters.

24-11-36 10/-

Signature Mrs. H.E. Hunt

(~~Miss~~ or Mrs.) ~~Hackwood Farm Etchingham~~

Address ~~62 Crouch Hall Rd N 8~~ E Sussex.

2 Rushmoor, Ashley Green, near Chesham, Bucks.



HUNT, H.E. Mrs.
Hackwood Farm,
Etchingham,
East Sussex.

947

8 OCT 1940 12 NOV 1940

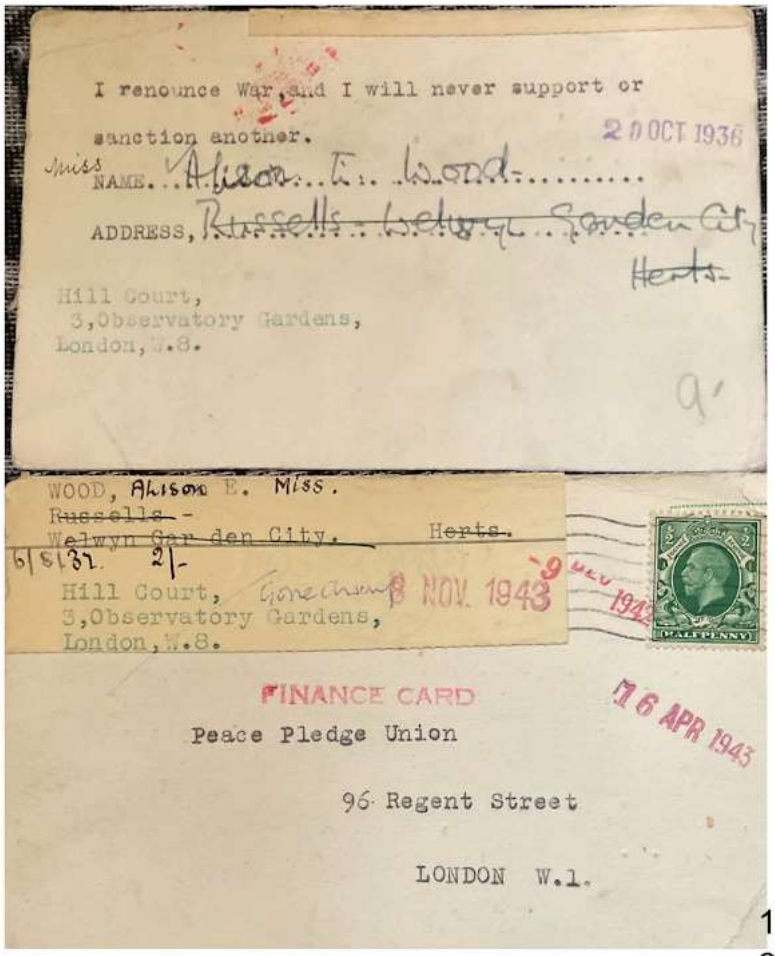
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Hersham Road,
Walton-on-Thames.

WITHDRAWN TAKEN OFF LIST SEC. NOTIFIED 30 OCT 1940



I renounce War and I will never support or sanction another.

20 OCT 1936

Miss NAME. ~~Alison E. Wood~~

ADDRESS, ~~Russells Welwyn Garden City~~ Herts.

Hill Court,
3,Observatory Gardens,
London, W.8.

WOOD, ~~Alison~~ E. Miss.
~~Russells~~ -
~~Welwyn Garden City.~~ ~~Herts.~~
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16 APR 1943



1936 UK "peace pledge" and 1939 editio
of Nobel Peace Prize appeasement book



CAMPAIGN AGAINST MILITARISM

** Have you seen the army recruiting adverts on television?

** Have you looked at the posters and newspaper ads for the army, navy and air-force?

** Is there a recruiting office in your town?

OVER £4,000,000 WAS SPENT ON ADVERTISING THE ARMED FORCES LAST YEAR.



** Do your children play with war toys like guns, tanks, Action Man?

** Are war books and comics on sale in your newsagents?

** Is there a cadet force in school near you?

OVER 140,000 CHILDREN IN MILITARY CADET FORCES ARE BEING TAUGHT THAT KILLING IS JUSTIFIABLE.

** How often are there military parades in your town?

** Have you ever seen a military display at a fair or exhibition?

** How far do you live from an army, navy or air-force base?

THE ARMED FORCES OWN OVER 1000 SQUARE MILES OF OUR COUNTRYSIDE.

E IN TWENTY FIVE OF BRITAINS WORKING PEOPLE ARE EMPLOYED IN PREPARATIONS FOR WAR
DON'T BELIEVE THOSE WHO SAY IF YOU WANT PEACE PREPARE FOR WAR

Published by the Peace Pledge Union whose members pledge to "renounce war and never support or sanction another". The PPU is the British Section of the War Resisters' International.
Peace Pledge Union, 6 Endsleigh Street, London WC1H ODX. (Tel: 01 387 5501)

THE CHILDREN AND WAR PROJECT

The CHILDREN AND WAR project is largely about gaining a clearer awareness and understanding of how some 'anti-social' attitudes develop, what the nature of these attitudes is, what effect they have on the world around us and what can be done about them and how to develop more caring and humane relationships and a better world.

There are many ways in which you can help raise, clarify and extend both our general understanding of some of these issues and their wider acceptance.

BRIEF OUTLINE OF THINGS YOU MIGHT LIKE TO DO



There are many opportunities at conferences, 'pesce' or 'green' fairs etc. at which to have a stall with Children and War material. Stalls provide an ideal opportunity for discussing issues with others, making new contacts, selling material, getting people to become supporters of the project and raising funds - have a 'donation' box handy! (Material for re-sale is available at a discount.)

Wherever you live there are likely to be organisations concerned with children - pre-school groups, child minders, nurseries, 'one o'clock' clubs, primary schools etc. You might like to contact these expressing your concern about war toys, asking them what their views are and initiating a discussion. (Some suggestions on this are available) Many of such groups might like to become supporters of the project.

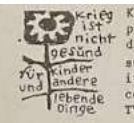
Many libraries, both adult and children ones, will often allow some kind of display - small exhibitions and posters are available for this purpose. (Send for details) Posters and mini exhibitions can also be used at conferences to good effect.



Traditional toy shops are thin on the ground these days but where they exist they are worth contacting. Some toy shops have few war toys as such in which case they may well be willing to display a poster, have some leafletson the counter, or sell copies of the C&W Newsletter. Children's bookshops or bookshops with a substantial children's section might also be willing to put up some display material.

We are also trying to compile a list of 'good toyshops' - that is toys shops that do not sell war toys. If there are any in your area please let us know, so that we can ask them through you or directly whether they would be interested in being on such a list which will be available to the project's supporters.

Toy shops which sell war toy are likely to be more difficult to deal with but a friendly approach is worth considering. If the toyshop concerned refuses to co operate in any way you might consider arranging a vigil outside it on a busy shopping day. (Placards, leaflets, street theatre, contacting local radio and press are some of the things you might consider. If in doubt how to go about



Keep a lookout for military and violent images which are used to promote ideas or products to the young. (Please send samples details to the office where possible. We are always in need such material.) Write to the manufacturer or advertisers, and it's an ad to whoever is responsible for displaying it. (A copies of correspondence and other details would be very welco TV and newspaper ads are a very fertile source.

Encourage support from your Euro MP. The European Parlia passed a resolution on war toys (copies of the resolution are available) member States to implement. Nothing has happend in response to this in Brit Sympathetic Euro MP's could encourage a fuller debate and a stronger resolut (some are already willing to do this) and your UK MP could be asked to find why the British government have not yet responded to the resolution. (If could let us have copies of your correspondence this would be a great help.)



If you are able to arrange a meeting or discussion group on subject of Children and war or war toys we would be pleased to you have some 'speakers' notes. In certain cases we may be able suggest a speaker.

Order copies of the CHILDREN AND WAR PETITION, collect signatur use it as a means of raising interest in the issues, as a focal point actions and publicity. (An information sheet about 'Why a petition' and how use it is available.)

The CHILDREN AND WAR Newsletter as well as being a source information is intended to be a forum for discussion. So do feel free to wr letter, reports of what you have done, dates of future activity and so on.



Express your concern to TV and film companies about some aspe of their output. TV companies already receive a lot correspondence on 'sex and violence' but the C&W project sees approach and philosophy in a somewhat different light to some the opponents of 'sex and violence'. Our objections is not violence as such but to the way that it is portrayed and reasons why it is being shown. For a critical discussion of issue see 'What is a war toy' and section on Films and TV in forthcoming Action and Information Pack.

A lot of playgrounds around the country have 'tank' climb frames. Some local authorities have even had them re-sited to point at the ga to the playground to enhance children's 'enjoyment'. In a number of pla concerned parents and children have succeeded in having these 'tan 'converted'. (SAE for information on this.) If there is such a tank in y neighbourhood you might like to consider having it 'converted'. A small step demilitarise our environment.



Many local newspapers and magazines find the ar forces and children irresistible. The armed forces part of 'recruiting' the future generation and keep themselves in the public eye arrange events w children specially in mind.

All these displays can only be put on with someon permission - usually the local authority or somet schools. If you get to know about such events you mi like to protest at such activities. Similarly many lo papers publish an effusive account of these eve (usually with pictures) - how wonderful of the ar forces to provide such entertainment for children. might like to write to the paper expressing alternative point of view. (Correspondence and cutti

ABOVE: Nazi supporting "peace" propaganda flooded the UK and USA in the 1930s, as it still does. Comintern's legacy is a repetition of the 1920s and 1930s anti-deterrent mindset, falsely portrayed by Russian "Fifth Column" propaganda fronts as "pacifism" or "peace" arguments. When communists were rejected as unpopular at the election polls, they adopted subversive methods, trying to undermine war readiness (deterrence) to help Russia get in a position to start WWIII, just as they had helped the Nazis in the 1930s do exactly the same thing (while being awarded "Nobel Peace Prizes" for their propaganda; look at the history of 1920s and 1930s gas war anninilation "Nobel peace Prize" liars Lord Noel-Baker, Sir Norman Angell et al.). The result wasn't an end to the arms race or militarism, but an escalation on the enemy side, and an erosion of technical competence and military preparedness on the side of the democracies. Banning the TV transmission of classic "Tom and Jerry" cartoons for "portraying violence as normal to kids" and banning "Action Man" style toy guns for "encouraging deterrence of dictators to kids" in the West, didn't stop Russia's Hitler Youth movement from preparing for war. All this just helped the enemy prepare for WWIII. The paranoid conspiracies aren't the supposed "war mongers" on the side of the democracies, but by the real war mongers on the side of the dictatorships and their fellow travelling "Sputniks", in infiltrating the Western political systems, mass media, and educational establishments with delusional fanatical anti-Western-nuclear bias. Numerous articles sent to "New Scientist" in the 1990s proving the errors in popular propaganda it published by anti-nuclear fanatics like "Rob Edwards" (co-author of the 1982 book "Fuelling the nuclear arms race: the links between nuclear power and nuclear weapons") were simply rejected because they contradicted populist lies "New Scientist" published weekly from such people! This made it appear that there was no opposition to such Russian Fifth Column propaganda lies! Result: no civil defence option and no tactical nuclear deterrent option against "Iraq's Weapons of Mass Destruction" in 2002, and instead WAR. Which is precisely what these lying thugs want. Once the press, the teachers, and the corrupt pseudo-liberal MPs or Lords use enforced "speech filtering" to completely corrupt free debate (it's not that much different to a dictatorship, except that "no platforming censorship" is used in the West, while bullets and poison is used in the dictatorships), you have crackpots and quacks in charge of "democracy", which is a travesty of the term!

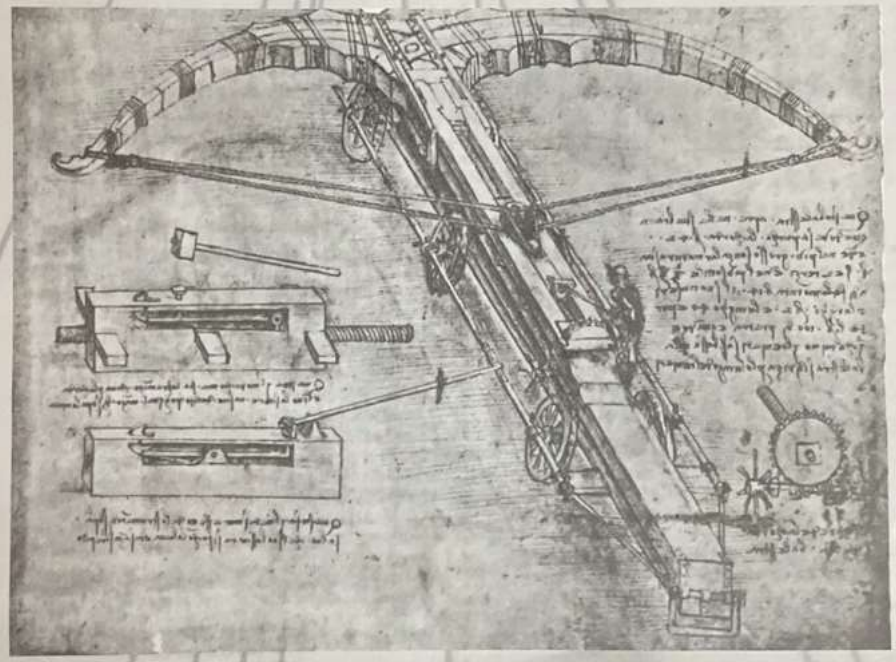
If you ban civil defense and nuclear deterrence of dictatorships, then you are left only with the option of WAR against every invasion or WMD threat which your delusional censorship encourages and promotes!

That's not pacifism. On the contrary, it's needless fascist based genocidal war that could be stopped!

PEACE MATTERS

science matters
understanding conflict
informal education
child soldiers

PRICE 80 p



science & war
old relationship
deadlier by the day

No 17 Spring 1997 ISSN 1350 – 3006

child soldiers

MORE AND MORE of the world is being sucked into a desolate moral vacuum. This is a space devoid of the most basic human values; a space in which children are slaughtered, raped, and maimed; a space in which children are exploited as soldiers; a space in which children are starved and exposed to extreme brutality.' writes Graca Machel in the introduction to ***The Impact of Armed Conflict on Children*** The report, the result of a two years research and consultation was submitted to the United Nations general Assembly at the end of last year.

The report reveals the full extent of children's involvement in the 30 or so armed conflicts raging around the world. Millions of children are caught up in conflicts in which they are not merely bystanders, but targets. Some fall victim to a general slaughter against civilians; others die part of a calculated genocide. Still others suffer the effects of sexual violence or the multiple deprivations of armed conflict that expose them to danger or disease. Worse still perhaps, thousands of young people are actually exploited as combatants.

The use of child soldiers is hardly new. Children have served armies in fighting roles as cooks, porters, messengers and spies. Increasingly, however, children are deliberately recruited as soldiers. It is estimated that there are over a quarter of a million children, some as young as 8, serving in government armies and opposition groups. Generally, however, child soldiers are largely invisible, as governments



Never too young: a Revolutionary guard, with a rose on her rifle, watches a demonstration in Iran

While industrialised states look to computer power and robotics to provide the 'perfect' fighting machine at a more basic level children offer 'ready-made, dispensable weapons platforms' to the mind detached from humanity. The proliferation of light weapons has made it easier to make use of children as combatants. Assault rifles are cheap and widely available, thanks to the international arms trade. In Uganda, an AK-47 can be bought for the cost of a chicken. Previously, the more

and so simple that they can be stripped and reassembled by a child of ten.

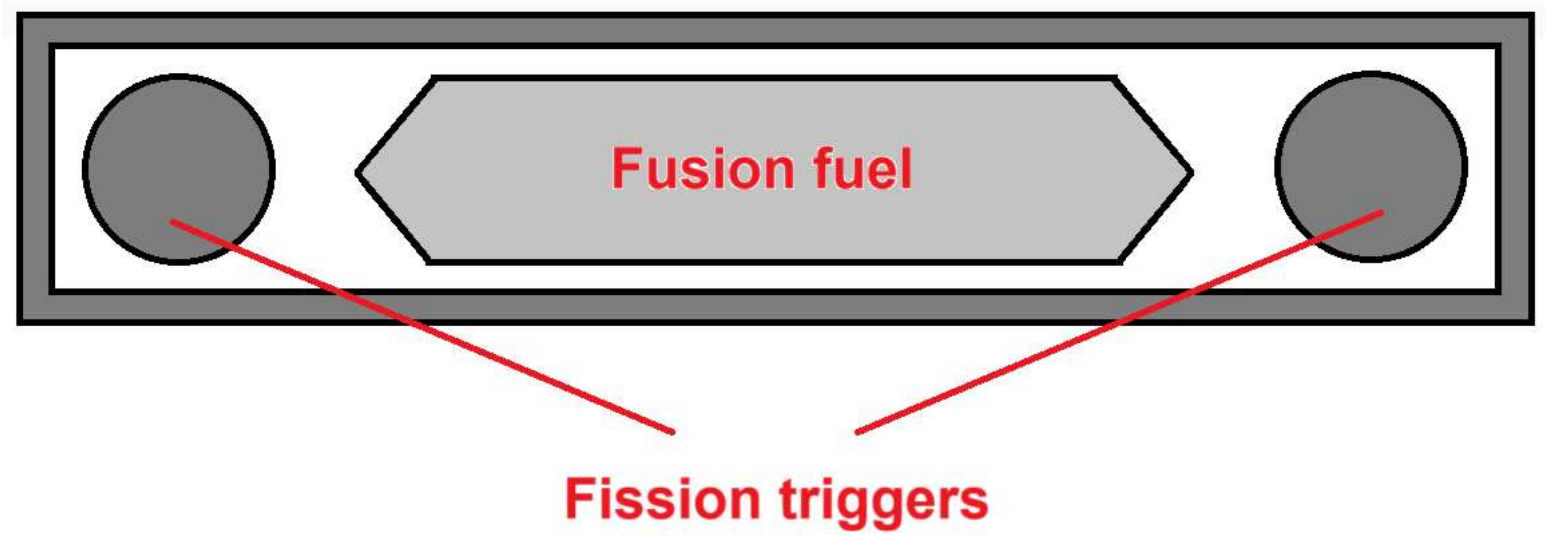
Children are seen as more obedient, less likely to question orders and easier to manipulate. Many are forcibly recruited, seized from the streets, or even from schools or orphanages whilst others are driven to join armed groups by fear or poverty, believing that this is the only way to achieve some protection from the violence around them or to be sure of regular meals, clothing or medical attention.

Child soldiers often start out in support functions. Boys serve as porters or as messengers. Girls may prepare food or attend to the wounded. However, both boys and girls are soon forced onto the battlefield, where their youth and inexperience leave them particularly vulnerable. Often they are unaware of the real dangers they face; they may even forget to take cover. In a particularly brutal variant of 'basic training' children have been deliberately exposed to horrific scenes to harden them to violence. Some have even been forced to commit atrocities against their own families as a way of severing all ties with their communities.

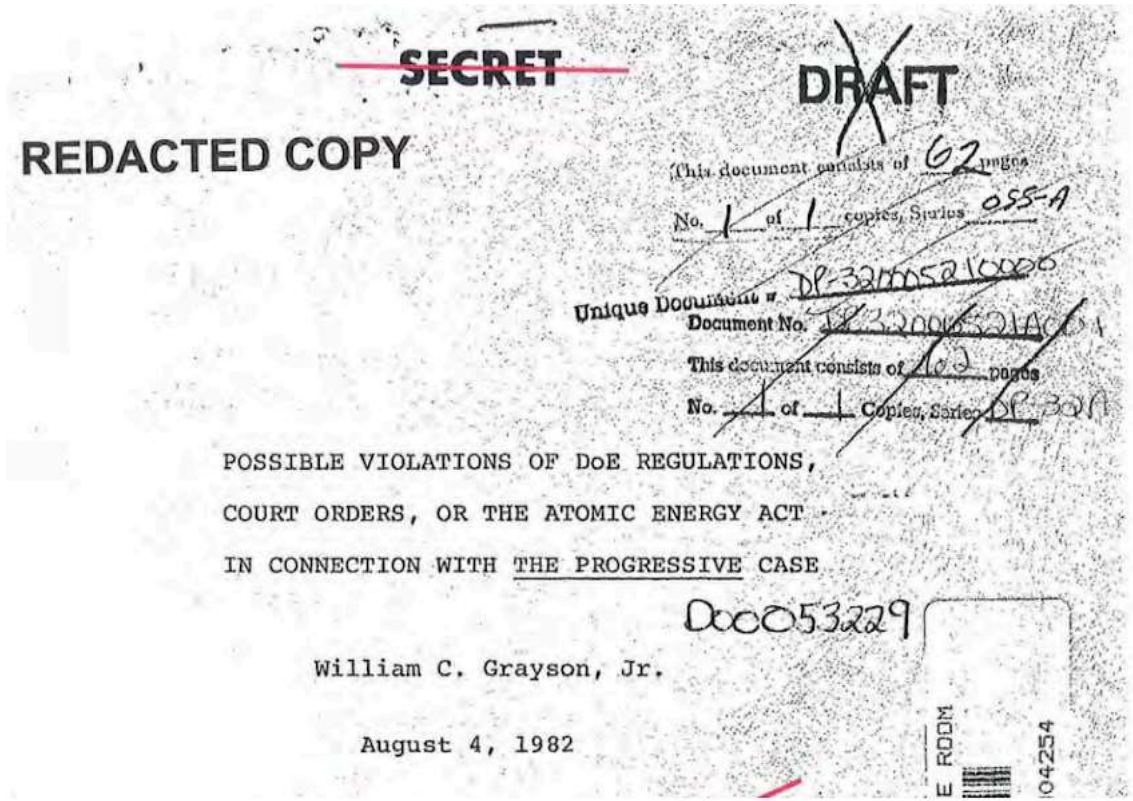
The report calls for a global campaign to stop the recruitment of anyone under 18 into armed forces and to encourage governments and opposition groups immediately to demobilize all such children. It recommends that all peace agreements specifically address the need to demobilize and reintegrate child soldiers back into society. It also calls on governments to support the early conclusion and adoption of a draft Optional Protocol to the Convention on the Rights of the Child that would establish the minimum age for recruitment into and participation in armed forces as 18 years.

As regards "child soldiers": we're constantly reminded of the plight of kids in wars, so why should they be denied the right to defend democracy in countries with ageing populations, when a failure of deterrence and dictatorial occupation will ruin the lives of kids?

All these fanatically anti-civil defense, anti-deterrent so-called "pacifists" - when pressed for their solution to terrorism - claim we can use "non-violent opposition" to enemy attacks; but we saw what happens to kids in this situation in the Holocaust and wars! If we're not going to have a nuclear deterrent, and we're not going to allow kids to learn how to protect themselves, the results are evil and immoral. These facts are conveniently declared to be "taboo"!



Chuck Hansen 1979 double primary H bomb design SIMILAR to Russian project 49 first tested 23 Feb 1958. SOURCE: Chuck Hansen's letter (dated August 27, 1979), to Senator Charles Percy of Illinois: "in letters to me dated April 10, 1979, and June 18, 1979, representatives of the DOE stated that my open research, and a national contest that I conducted, would lead to the generation and transmission of classified data - this in spite of the fact that all of the information that I was seeking would come from unclassified published sources. It has also become obvious that at least one of the three concepts discussed in the disputed Morland article is currently unclassified in the Soviet Union, and that when it was discussed openly here in 1976 by a Soviet scientist, the U.S. government, acting through the Energy Research and Development Agency, classified his speeches (Morland might have stood a better chance of publishing his article in the USSR).



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POSSIBLE VIOLATIONS OF DoE REGULATIONS,
COURT ORDERS, OR THE ATOMIC ENERGY ACT
IN CONNECTION WITH THE PROGRESSIVE CASE

D00053229

William C. Grayson, Jr.

August 4, 1982

E ROOM 04254

On August 27, 1979 Charles (Chuck) Hansen sent a lette
to Senator Charles Percy which contained a RD description
the secret of the H-bomb, in terms very similar to Morland
article.

On September 7, DoE received an "article" from Hansen
for comment which later turned out to be excerpts from the
Percy letter. Then on September 12, DoE received a copy o
the Percy letter itself from LLNL, who had been given it
by Hugh Dewitt (at least two weeks after he got it, and
possibly only for provocation!) Hansen gave a long list o
recipients (see Appendix 3), including newspapers, Congres
man and Hugh Dewitt. All known recipients were contacted.
Only the Daily Californian seemed likely to publish, and a
TRO was obtained on September 15. However, on September 1
the letter was published by the Madison Press Connection,
not one of the known recipients. Publication of the lette
effectively mooted The Progressive case and the DOJ asked
for dismissal. The Madison Capitol-Times, whose employees

22 ~~16~~

SOURCE: full 67 pages declassified report is at: https://www.governmentattic.org/53docs/DOEtheGraysonRept1982.pdf

"... in letters to me dated April 10, 1979, and June 18, 1979, representatives of the DOE stated that my open research, and a national contest that I conducted, would lead to the generation and transmission of classified data - this in spite of the fact that all of the information that I was seeking would come from unclassified published sources. It has also become obvious that at least one of the three concepts discussed in the disputed Morland article is currently unclassified in the Soviet Union, and that when it was discussed openly here in 1976 by a Soviet scientist, the U.S. government, acting through the Energy Research and Development Agency, classified his speeches (Morland might have stood a better chance of publishing his article in the USSR).

"The concepts discussed in the Morland article deal with basic applied physics, and they are certainly no longer 'secret' - if they were, four other nations would not now have operating thermonuclear weapons. Even though the DOE now admits that this type of information is in the public domain, it is still trying to suppress the circulation of this data, in order to maintain a false illusion of secrecy, and to maintain a real monopoly over the dissemination of weapons-related information, and over the public discussion of American nuclear policies, policies which affect nuclear reactors as well as nuclear weapons. ... What happened next will be discussed in the description of the accompanying diagram, when the ***concept of isentropic compression is explained.*** *... As can be seen from the enclosed diagram, the basic bomb consists of* ***two*** *boosted fission triggers* ***at opposite ends of a mass of lithium-6 deuteride fusion fuel, all contained in an outer casing of uranium-238. ... This arrangement requires that the outer weapon casing play an essential role (as medium to absorb x-rays and re-emit them into the fuel mass) ... there are two triggers in the bomb. The purpose of this is to allow a symmetrical compression of the fusion fuel between them, as well as allowing an x-ray source at each end of the bomb. These two fission triggers must fire simultaneously,*** *or no fusion will occur. ... This sudden elevation in temperature of the fusion fuel, following the* ***isentropic compression, begins the larger main fusion reaction in the weapon****. ... "* [Emphasis added.]

- Chuck Hansen, August 27, 1979 letter to Senator Charles Percy, published in full in the Sunday, September 16, 1979 special edition of the *Madison Press Connection*.

It must be emphasised (*see the latest blog post here for the physical and mathematical details*) that adiabatic "non-shock isentropic compression" of low density fusion fuel was first suggested during the April 1946 Los Alamos Super Conference, but was ignored by Teller and the American mainstream until investigated and tested by Nuckolls during totally clean secondary tests (including a 99.9% clean Ripple II 10 megaton test on 30 October 1962). Isentropic compression is compression *without heat transfer between the fusion fuel and its surroundings*, involving a gradually increasing compression - more like the pressure variations in a sound wave than the pressure discontinuity at a shock front. Shock waves involve "isothermal compression" at the shock front, which radiates wasted energy as heat in all directions, reducing the kinetic energy used to compress the fusion fuel. The key thing to focus on is the fact that you want to compress fusion fuel to cause fusion, and the fusion *then* releases heat which opposes compression, dispersing the remaining fusion fuel, and *ending fusion*. What you are trying to do is to compress fusion fuel so it releases nuclear energy (including heat) as a result of nuclear fusion, not waste energy radiating heat into the surroundings before you compress the fuel (such heat waste opposes compression of the fusion fuel). To the extent that you heat the fuel and cause it to radiate energy during compression, you defeat your purpose and get an inefficient compression (akin to pre-initiation in primary stage fission weapons if they are pre-heated by neutron induced fissions).

Teller ignored all this, and indeed until March 1951 he claimed to have a "no go theorem" against compression, and then he used ablative recoil exploding pushers to give relatively ineffective shock compression of fusion stages in his "Sausage" design, the standard 1950s thermonuclear system. Nuckolls and the Russians, however, used gentler isentropic compression (by using a low-density pusher like beryllium on a clean LiD fusion fuel capsule; with any dense U238 placed in the outer casing of the bomb, rather than used as the pusher in contact with the fusion fuel), which *enabled more of the primary stage x-ray energy to be used to compress the fusion stage to high density, with less energy being wasted on heat transfer during compression*. If you do any sort of work, e.g. hammering nails into wood, charging a battery, or running an engine, some energy will be used in achieving the objective, and some will be wasted as heat. If you want maximum work efficiency, you need to minimise waste heat (i.e. you want to *reduce the rise in entropy S, so that the change in entropy dS ~ 0, which is the definition of the ideal of "isentropic compression"*), which means losing the shock wave-producing *dense ablative shell* on the fusion fuel in the "Sausage" designs tested in the 1950s by the USA, which resists isentropic compression. With a dense pusher, you get shock compression which radiates heat before the shock even reaches the core and compresses it, so you only get core compression factor of 20-30, whereas if you use a *low-density ablator like beryllium, aluminium or plastic on the fusion fuel,* you can achieve nearly isentropic compression factors of 1,000 or more! I.e.. the core density is increased by a factor of 1,000, so that the fusion rate is much faster and more efficient (more fusion is accomplished before the bomb blows itself apart). The latter compression is even sufficient to ignite deuterium fusion, according to Russian claims about their 1960s-1970s cleaner isentropic bomb tests for "peaceful uses" (and tactical nuclear weapons), giving a *far cheaper and longer-life warhead than the deuterium-tritium fuel used in the low yield American "Dove" and "Starling" designs of neutron bombs!* ("Isotropic compression" just means equal from all directions, and has nothing to do with "isentropic compression".) Similarly, the first implosion bombs used dense U238 neutron reflectors around the core, requiring inefficient shock compression, whereas lower density beryllium reflectors allowed greater efficiency quasi-isentropic compression in fission designs.

A great deal of the popular media's confusion over thermonuclear weapons designs is down to misunderstanding the nature of the x-ray pulse from the fission primary stage. Glasstone and Dolan's 1977 *Effects of Nuclear Weapons* usefully explains that most (over 80%) of the energy can be released x-rays generated by inelastic fission fragment collisions, on a time scale of the order 1 shake or 10 nanoseconds. However, that is only true for a bare fissile metal core, so in reality the considerable mass of chemical implosion debris (mainly carbon, oxygen and hydrogen ions) around that core diffuses the x-rays with a random-walk that slows the x-ray emission into typicaly a 100-times longer pulse than 10 nanoseconds, i.e. around 1 microsecond. It is for this reason that early thermonuclear weapons had heavy outer cases, to contain the diffusive x-ray emission pulse from the fission primary stage's ionized low-Z element fireball, enabling more of that energy to be coupled into fusion stage before the outer casing is destroyed and the coupling ends. Because of this, the fusion stage is not abruptly compressed over a 10 nanosecond time period as implied by Glasstone's unclassified statement that most of the fission energy is emitted in the last shake, but more gradually over a time of up to 1 microsecond. The design of the fission primary stage therefore determines the nature of the x-ray pulse waveform. This problem has been known since the beginning, which is why a gun-type fission weapon was selected in 1946 for the fusion "Super" primary stage, because it would eliminate the implosion debris fireball x-ray diffusion problem, and also why Gamow designed a cylindrical implosion "Greenhouse-George" primary, to enable x-rays from a bare side of a fissile core to initiate fusion without the complexity of x-ray shielding and transport through low-Z barriers, as occurs with spherical implosion primary stages.

Above: **the Russian compact (e.g. MIRV or tactical neutron) nuclear bomb concept is simply to use two small fission devices to compress a relative low-density prolate-spheroid shaped secondary stage (e.g. LiD fusion fuel, rather than U235 pusher with fusion boosting, as used in the American W88 warhead), a concept illustrated in Russian military books by reprinting a full-page nuclear weapon design diagram on page 54 of the 5 December 1955 *Life* magazine! Using two primaries to compress a prolate spheroid charge of low-density fusion fuel (one at each end) means you don't have to disperse x-rays from a single primary uniformly (for isotropic compression) around the secondary stage using "reflective focussing" from the inside of a massive pear shaped casing (as for their 1.6 megaton 1955 RDS37 design) or a massive egg shaped casing (as for the 250 kt Los Alamos Redwing-Huron "Egg" design with a spherical secondary, tested at Bikini in 1956), or even to use a low-density "foam x-ray disperser" as used in British two-stage thermonuclear Grapple tests (and later Livermore compact spherical secondary stage designs for MIRV missiles). Also, by not having a dense pusher on the secondary stage (you can add U238 to the outer casing if you want to boost the fission yield, as shown above), it is easier to compress it, so you get greater compression than is the case for the inclusion of dense metal in the secondary, giving *far more efficient ("nearly isentropic") compression for a very efficient fusion burn which can use cheap deuterium to initiate it, rather than requiring costly tritium-deuterium fusion (needed for the smaller compressions achieved in modern Western secondaries with dense metal pushers), thus not only miniaturizing the H bomb but also enabling nearly clean tactical neutron bombs to be produced very cheaply, without needing large amounts of costly tritium (which has a half life of only 12.3 years, so has to be regularly produced by the costly irradiation of lithium, placed in gas proof capsules inside the core of a nuclear reactor).***

Ironically, Chuck Hansen, the author of *US Nuclear Weapons*, re-invented the Russian "Project 49" double-primary H-bomb independently in a 27 August 1979 letter to Senator Charles Percy of Illinois, only to have this double-primary design dismissed as "wrong" by American nuclear weaponeers, some of whom didn't even know that: (a) Teller and Ulam had stated that one or more primary stages could be used to ignite a H-bomb in their 1951 breakthrought paper, and (b) you can get both primary stages to detonate simultaneously by simply wiring up the electronic neutron guns for each primary into a parallel circuit, and doing the same for their electrical detonators and x-unit capacitors and krytron switches. Hardened groupthink dogma orthodoxy is is hard to debunk! (The Russian double primary idea was even earlier suggested by journalist John McPhee to nuclear weaponeer Dr Ted Taylor with this dismissive result, as reported in McPhee's 1974 book, *The Curve of Binding Energy*. Note that Howard Morland's design relied on Edward Teller's single-primary H-bomb illustration in his article "Hydrogen Bomb", in the *Encyclopedia Americana,* v14.)

GEORGE GAMOW'S ASYMMETRIC-IMPLOSION FISSION BOMB DESIGN FOR USE AS AN EFFICIENT DIRECTED X-RAY SOURCE FOR RUSSIAN PROJECT 49 DOUBLE PRIMARY NEUTRON BOMBS

НАУЧНО-ПОПУЛЯРНАЯ БИБЛИОТЕКА

Nuclear energy in aviation and rocketry.

Collection of articles

АТОМНАЯ ЭНЕРГИЯ В АВИАЦИИ И РАКЕТНОЙ ТЕХНИКЕ

Сборник статей



Книга рассчитана на офицеров Советской Армии, Авиации и Флота, советскую молодежь и членов ДОСААФ.
[The book is intended for officers of the Soviet Army, Aviation and Navy, Soviet youth and members of DOSAAF.]

ВОЕННОЕ ИЗДАТЕЛЬСТВО
МИНИСТЕРСТВА ОБОРОНЫ СОЮЗА ССР
МОСКВА—1959

легким из металлов, плотность его соединения с водородом значительно превышает плотность тяжелых изотопов водорода (дейтерия и трития), находящихся в жидком состоянии. В иностранной прессе отмечается, что для обеспечения мощности взрыва порядка 10—20 млн. т тротила достаточно несколько сот килограммов гидрида лития. Это значит, что термоядерную бомбу может нести истребитель-бомбардировщик или управляемый снаряд.

Из зоны термоядерной реакции выбрасывается огромное количество быстрых нейтронов. Возник вопрос, нельзя ли эти нейтроны использовать для усиления силы взрыва. Оказывается, можно, если водородную бомбу заключить в оболочку из сравнительно дешевого природного урана 238.

Водородно-урановая бомба

Имеются сообщения в иностранной печати о схеме построения водородно-урановой бомбы, в которой сначала происходит расщепление ядер, затем синтез и снова расщепление. Возможная схема такой бомбы показана на рис. 61.

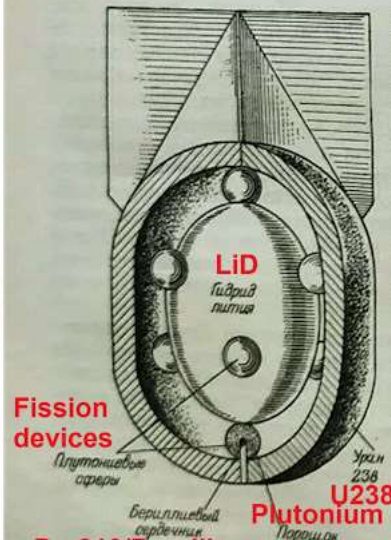


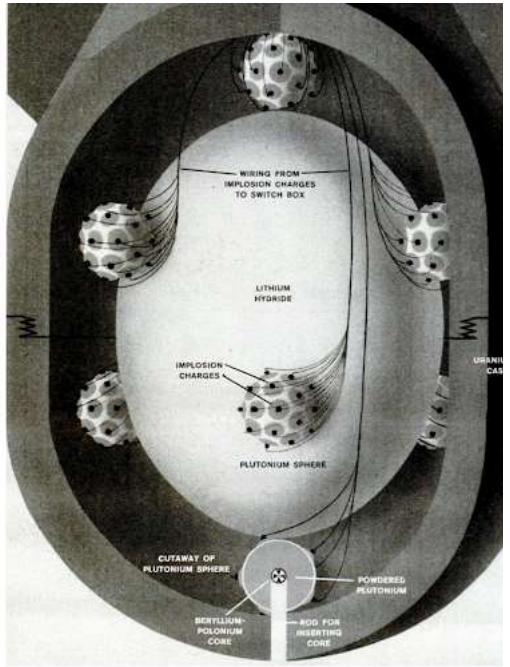
Рис. 61. Схема водородной бомбы

Вначале под действием газов от взрыва обычного взрывчатого вещества из плутониевых сфер (порошкообразный плутоний) образуются критические массы атомного детонатора. Под действием нейтронов, испускаемых бериллиевыми сердечниками, плутониевые сферы взрываются. Затем начинается термоядерная реакция в гидриде лития с выделением большого количества быстрых нейтронов. Эти нейтроны вызывают расщепление ядер природного урана, из которого изготовлена оболочка.

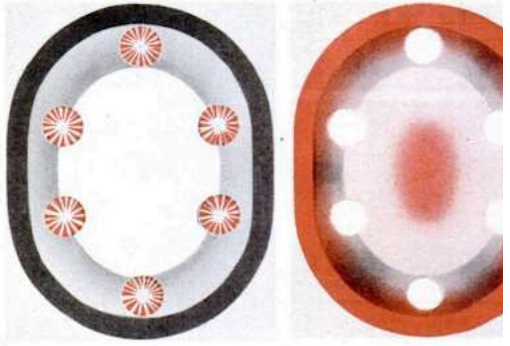
174

This 1959 Russian nuclear rockets book edited by J. M. Kader and published by the Military Publishing House of the USSR in Moscow, is unclassified and thus uses American sources for data.

It shows a design published (as Dr Alex Wellerstein has pointed out on his blog) in a 5 December 1955 USA *Life* Magazine article at page 54 (right). The Russian "project 49" double-primary test of 23 February 1958 used apparently similar ideas!



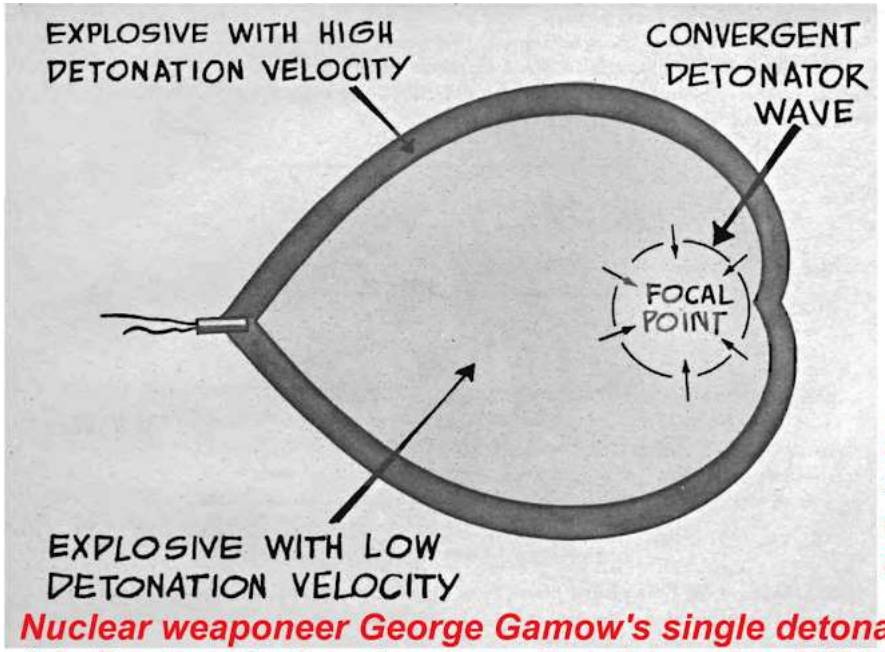
HYPOTHETICAL 3-F BOMB, shown in cutaway, is based on published information and gives only theoretical construction without indicating actual size or arrangement. Bomb has Uranium 238 casing enclosing lithium hydride, a compound containing hydrogen for fusion. Evenly spaced around lithium hydride are spheres of plutonium powder. Each is plastered with many electrically triggered charges to set off bomb. Each has core of and polonium which produce neutrons to fission. Since polonium soon loses its ra fresh cores are inserted through casing rods shortly before bomb drop. How exp ceeds is shown in the three drawings at





NEUTRON BLAST from fusion, fissions the U-238. Three-stage sequence lasts millionths of a second.

Life, 5 Dec. 19
page 54 (full
page diagram
multiple prim
H-bomb, with
prolate spher
fusion fuel
compressed
"fission heat
blast").



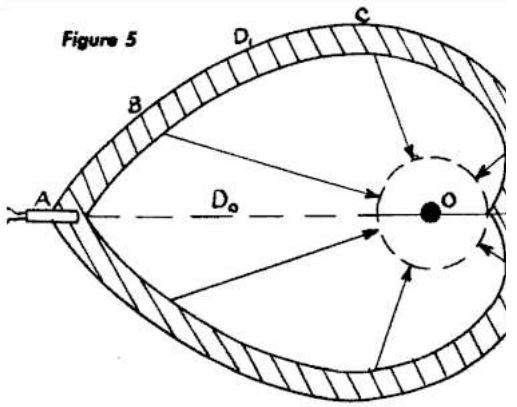
General Considerations ON EXPLOSIVES AND EXPLOSIONS

A REPORT PREPARED FOR THE AAF SCIENTIFIC ADVISORY GROUP

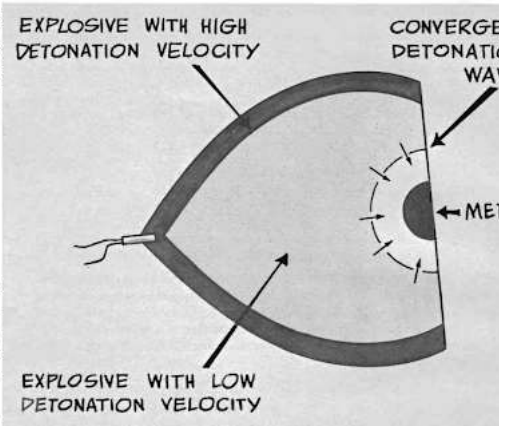
Page 13 of this report is on left (this report covers fission and H-bombs)

By G. GAMOW

The George Washington University, Department of Physics



When Incl. ... classification ... will be changed to ... accordance with Part. 25a



Nuclear weaponeer George Gamow's single detonator design for an implosion system (similar to a design shown on Russian nukes Wikipedia for years!)

SOURCE: https://www.governmentattic.org/vonK/VKarman_Eplosives_c9_Pt1.pdf

AUTH: Commanding General AAF Per. Hq. AAF Letter Instruction Classified 2, ... 1946 SECRET

Classification c... to UNCLASS The Chief of S... Force by ... 5

ABOVE: declassified originally "TOP SECRET" 1946 nuclear weapons design study for Dr von Karman, *General Considerations of Explosives and Explosions* of fission and thermonuclear weapons by Los Alamos nuclear weaponeer Dr George Gamow (he designed the "Greenhouse-George" 1951 radiation imploded fusion capsule using a special cylinder implosion fission primary to allow x-rays to escape from the sides) throws light on the Russian fission primary stage designs used in their very compact neutron bombs. In the West, spherical or prolate spheroid shaped linear implosion primaries are used, but the Russian language Wikipedia and other Russian language military internet pages (which are completely separate from Western Wikipedia, not simply translations!) for years have contained diagrams of a special single-detonation point implosion lens system, which is now revealed to be due to George Gamow (full declassified report is LINKED HERE). The key benefits for this revolutionary Gamow design in tactical neutron bomb design are:

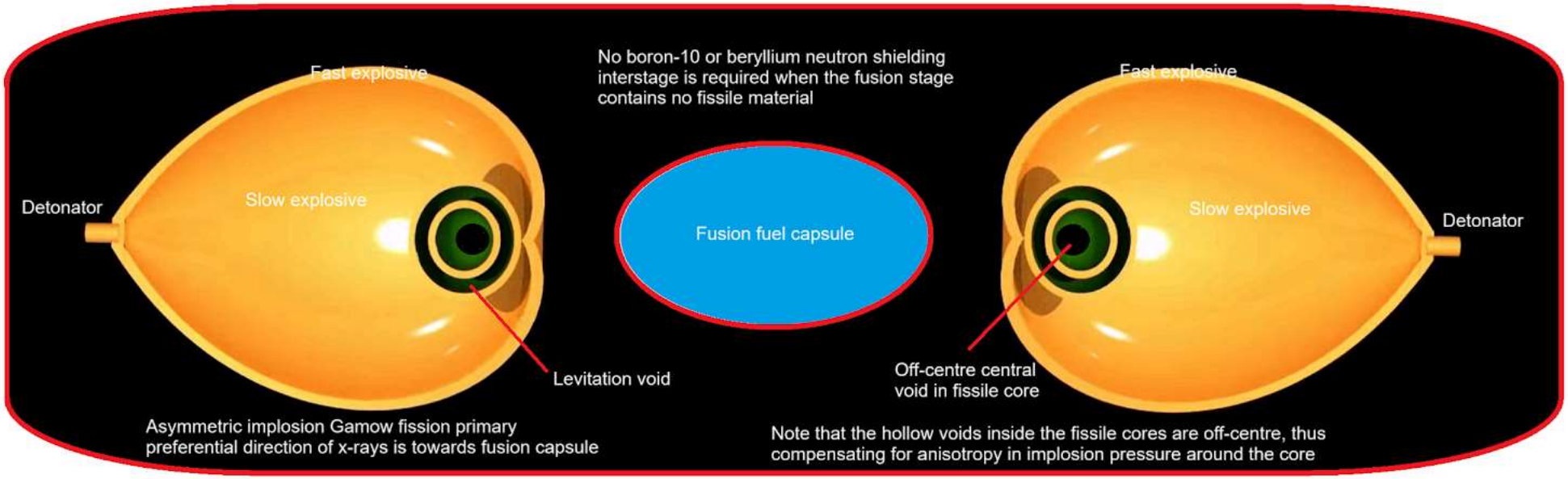
(a) the fissile mass is off-centre, so x-rays escape in a preferential direction with little shielding by chemical explosive debris, thus maximising the exposure of a fusion fuel capsule to x-rays from an implosion fission primary, and

(b) the fact

only one detonation point is required

(which can be shielded by a steel cover to protect that point from accidental impact etc), minimises the size of the x-unit capacitor, battery, etc, as compared to spherical implosions where a lot of points need simultaneous ignition for successful implosion (see French nuclear test flash x-ray photos below!). The West uses a "no-go theorem" to rule out this design called "one-point safety", whereby the implosion system must be safe from effective compression of the fissile core occurring from a detonation at any single point on the outside. However, for such very low yield (sub kiloton) fission weapons, safety concerns can be relaxed in a world war situation where mass production of nuclear shells is required, and the neutron gun must be fired at the optimum compression time to achieve a significant nuclear yield. The single point of detonation can be protected both (a) mechanically by a steel impact cap over it (so if dropped, any impact detonation will occur at the wrong point, and (b) electrically by a fuse in series with the detonator which will blow at a current rating below that required to fire the detonator. When the weapon's detonation is actually required, the fuse can be mechanically changed for a high-current conductor just before detonation.

A feature of this Gamow design is that although the off-centre fissile core is simultaneously compressed in time, the force is anisotropic (being naturally greater on the side with the most explosives), so the hollows in the fissile cores need to be displaced similarly to compensate (so that side of the fissile core with weaker implosion pressure is thinner). *Although you would expect the ansiotropy of implosion to physically shift the core towards the fusion capsule and thus block the x-ray channel, this doesn't happen in reality because the time scale of the macroscopic acceleration of the core (taking many microseconds) is massive, compared to the relatively trivial timescale of the very fast nuclear reactions such as fission*

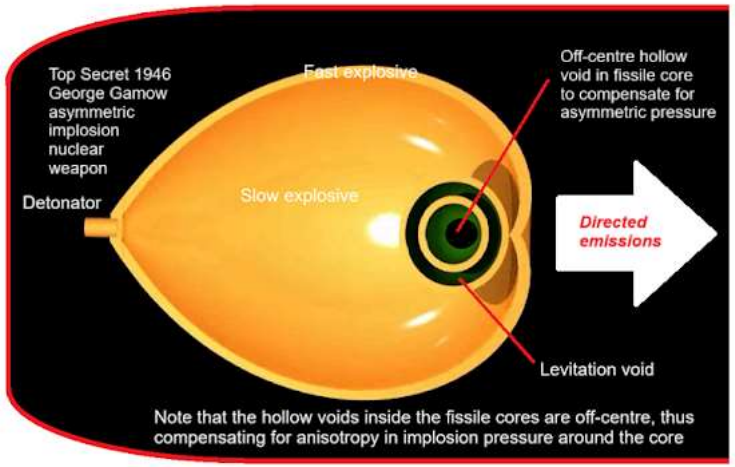


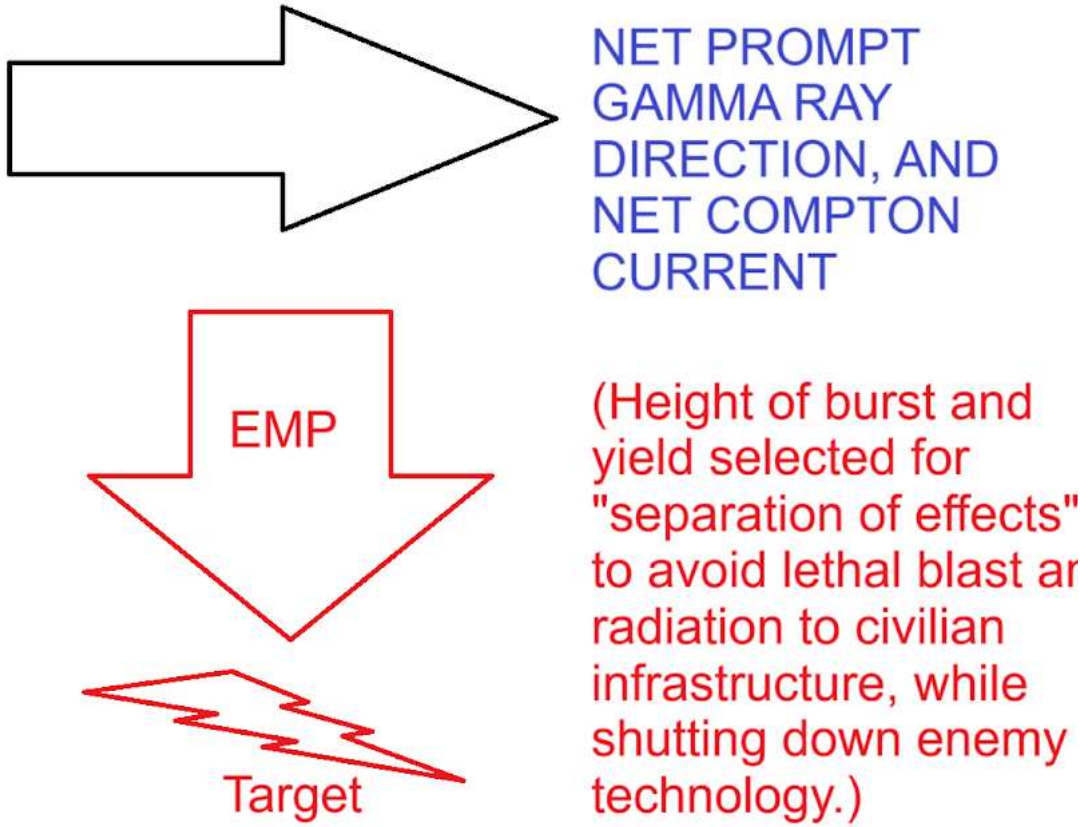
and x-ray ablation phenomena! It appears from Russian information that they use this kind of fission primary to massively reduce the mass and firing circuit complexity of their double-primary ignited neutron bombs. Dr Gamow illustrated technical reports himself, as he did for his wonderful kid's physics books on a big bang, etc.

ABOVE: note that a single Gamow asymmetric implosion fission stage can *also* be used to enhance the neutrons and prompt gamma rays in a preferential direction, for use in either ABM defensive neutron warheads (to take out incoming MIRV warheads), or to create a directed prompt gamma ray and prompt Compton current, for a non-lethal localized and directed EMP collateral-damage-averting nuclear weapon (as described using old tech, 3 decades ago in the November 1994 issue of Electronics World, by yours truly), and this **Gamow off-centre implosion is depicted in an August 6, 2015-uploaded animated video and labelled "Swan" by Russian Wikipedia user "Guga50", which is currently displayed on the Russian Wikipedia article "Nuclear Weapons"** (this Russian "Nuclear Weapons" Wikipedia article is *not* just a translation of the Western Wikipedia "Nuclear Weapons" article, which shows an entirely different "Swan"-labelled design; a symmetric prolate spheroid with 2-point detonation, not an asymmetric 1-point detonation implosive; my point here is just to point out a discrepancy rather than to say "one is right and one is wrong", since both types are certainly possible from the pure scientific standpoint and it is likely the American "Swan" design is the two-point implosion system, but the Russian Wikipedia design is backed by the design Western nuclear weaponeer Gamow explains in detail in his originally top secret 1946 report and the general Russian custom to take short cuts for cheapness that are "ruled out" by Western bureaucrats with bigger weapons budgets to blow at the taxpayers expense), which states: "... the 1st fission stage cannot provide a sufficient amount of X-ray radiation energy, which is necessary to ensure the explosion of "large" thermonuclear stages. In three-stage devices, the 1st fission stage (with an explosion power of up to tens of kilotons) is used for the radiation implosion of the 2nd ("small") thermonuclear stage (with an explosion power of several hundred kilotons), and the radiation of this 2nd thermonuclear stage (together with the radiation of the 1st stage) is used for the radiation implosion of the 3rd ("large") thermonuclear stage ... In "Tsar Bomba" (AN-602), the first two and the second two stages were placed symmetrically on 2 sides of the third ("large") thermonuclear stage, according to the so-called "bifilar" scheme." (Note: the Russian Wikipedia page on the neutron bomb points out that the casing is composed of "transparent" elements, i.e. those with small cross sections for 14.1 Mev neutron reactions, such as nickel, chromium and tungsten.)

Russian language Wikipedia https://ru.wikipedia.org "Nuclear Weapons" page, section on "Swan" (translated from Russian into English; 14 October 2024): "*The described scheme of spherical implosion is archaic and has hardly been used since the mid-1950s. The principle of operation of the "Swan" type design (English: swan) is based on the use of a fissile assembly of a special shape, which, in the process of implosion initiated at one point by one fuse, is compressed in the longitudinal direction and turns into a supercritical sphere. The shell itself consists of several layers of explosive with different detonation rates, which is made on the basis of an alloy of octogen and plastic in the required proportion and filler - polystyrene foam, so that between it and the nuclear assembly located inside there remains a space filled with polystyrene foam. This space introduces the necessary delay due to the fact that the speed of detonation of the explosive exceeds the speed of the shock wave in the polystyrene foam. The shape of the charge strongly depends on the detonation speed of the shell layers and the speed of propagation of the shock wave in polystyrene, which is hypersonic under these conditions. The shock wave from the outer layer of explosive reaches the inner spherical layer simultaneously over the entire surface. A significantly lighter tamper is made not from 238U, but from beryllium, which reflects neutrons well. It can be assumed that the unusual name of this design - "Swan" (first tested by Inca in 1956) was suggested by the shape of the swan's neck. Thus, it was possible to abandon the spherical implosion and, thereby, solve the extremely difficult problem of sub-microsecond synchronization of fuses on a spherical assembly and thus simplify and reduce the diameter of the implosion nuclear weapon from 2 m in the "Fat Man" to 30 cm or less in modern nuclear weapons*."

[Original Russian: "Описанная схема сферической имплозии архаична и с середины 1950-х годов почти не применяется. Принцип действия конструкции типа «Swan» (англ. swan — лебедь), основан на использовании делящейся сборки особой формы, которая в процессе инициированной в одной точке одним взрывателем имплозии, сжимается в продольном направлении и превращается в надкритическую сферу. Сама оболочка состоит из нескольких слоёв взрывчатого вещества с разной скоростью детонации, которую изготавливают на основе сплава октогена и пластика в нужной пропорции и наполнителя — пенополистирола, так что между ним и находящейся внутри ядерной сборкой остаётся заполненное пенополистиролом пространство. Это пространство вносит нужную задержку за счёт того, что скорость детонации взрывчатки превышает скорость движения ударной волны в пенополистироле. Форма заряда сильно зависит от скоростей детонации слоёв оболочки и скоростью распространения ударной волны в полистироле, которая в данных условиях гиперзвуковая. Ударная волна от внешнего слоя





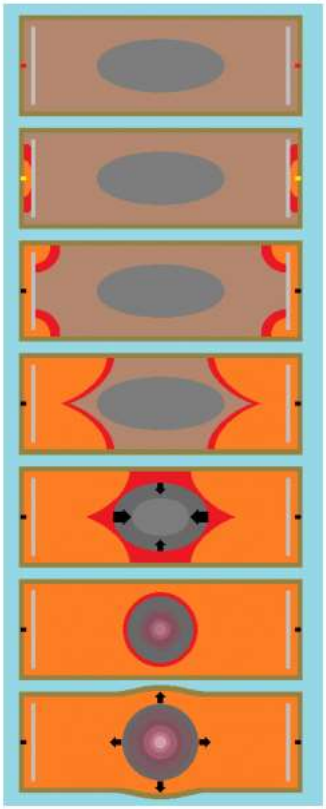
Source: adapted from "Weapon of Peace", *Electronics World*, November 1994

Non-lethal directed EMP (radiated perpendicularly to Compton Current) nuclear weapon

взрывчатки достигает внутреннего сферического слоя одновременно по всей поверхности. Существенно более лёгкий тампер выполняется не из 238U, а из хорошо отражающего нейтроны бериллия. Можно предположить, что необычное название данной конструкции — «Лебедь» (первое испытание — Inca в 1956 г.) было подсказано формой шеи лебедя. Таким образом оказалось возможным отказаться от сферической имплозии и, тем самым, решить крайне сложную проблему субмикросекундной синхронизации взрывателей на сферической сборке и таким образом упростить и уменьшить диаметр имплозивного ядерного боеприпаса с 2 м у «Толстяка» до 30 см и менее в современных ядерных боеприпасах."]



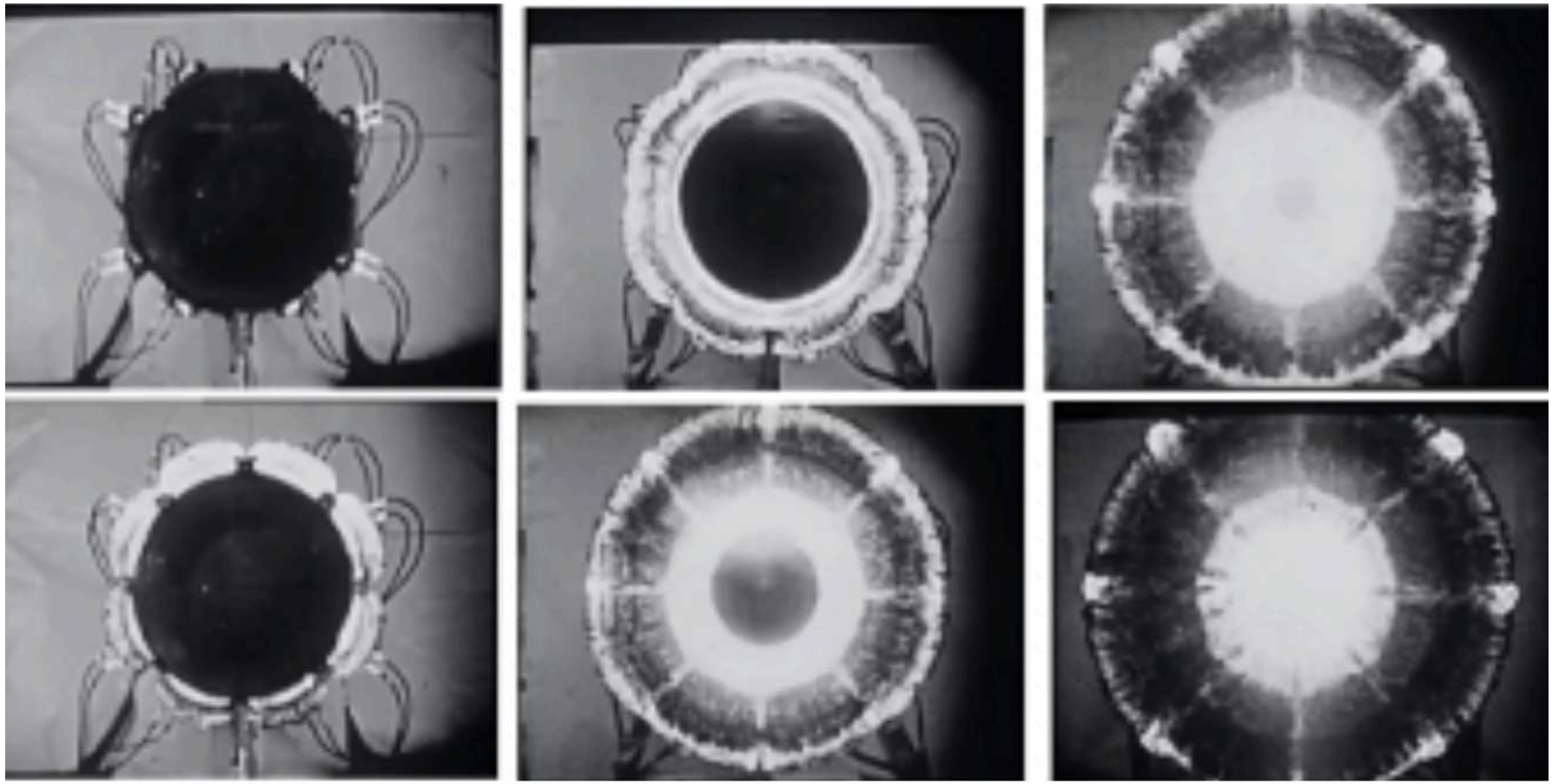
Implosion device, designed by Louis Médard, Robert Sartorius and André Cachin, engineers of the Service des Poudres in the early 50s (French first test was 1960).



Linear implosion W48 artillery shell.

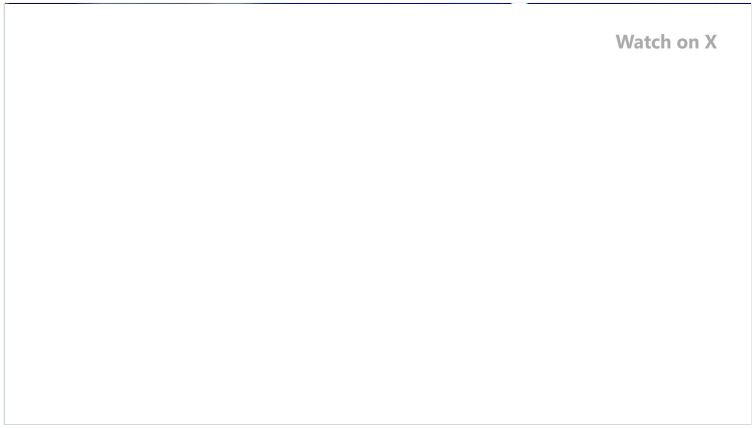
June 1991 issue of Chocs: revue scientifique et technique de la Direction des Applications Militaires, Interface instabilities in a cylindrical implosion (CEA-DAM publication)

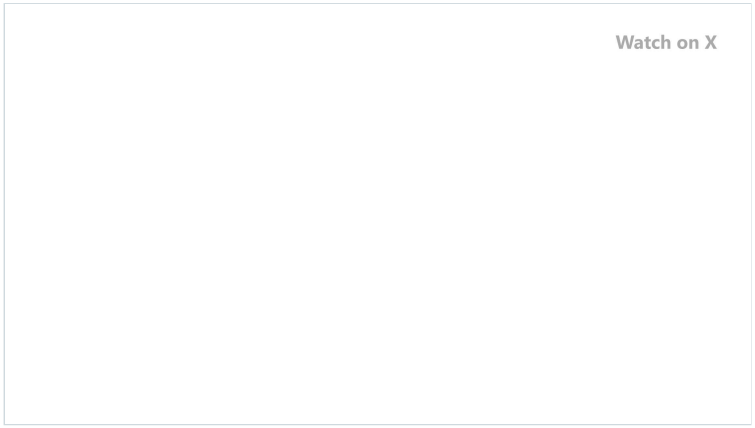
Nuclear war threat discussion efforts in the Presidential Election Debate on TV in September 2024, Trump v. Harris, note only Trump was concerned with nuclear war (Harris was in the Democratic party, whose president on 6 and 9 August 1945 used two nuclear weapons against a non-nuclear state, which explains this clearly):



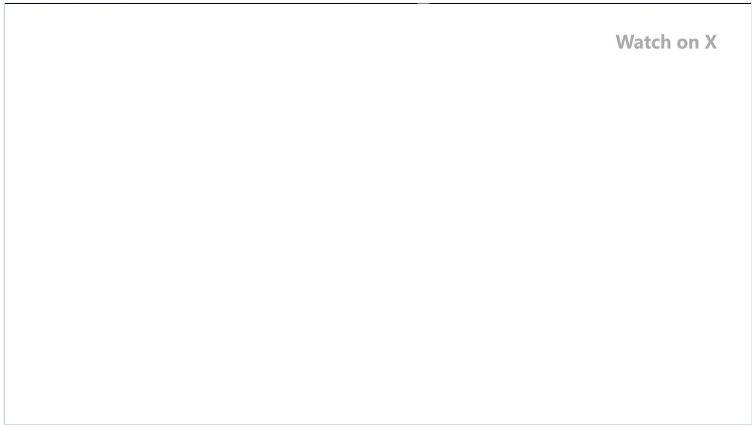
Flash x-ray photos of stages in French nuclear implosion system hydrotest.

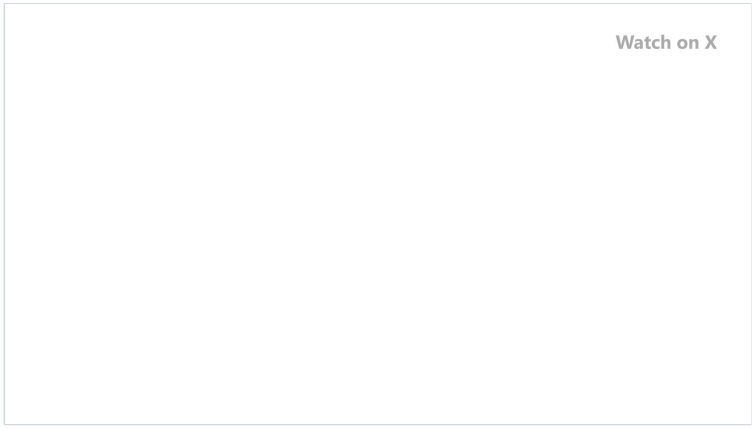
SOURCE: *Implosion,* Fort de Vaujour, France, 1970

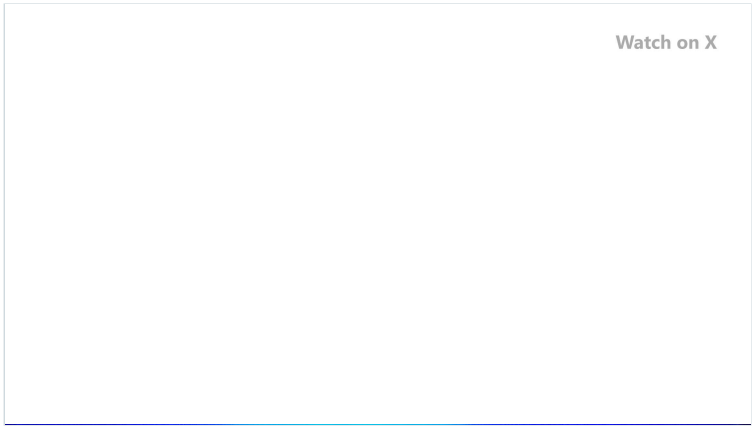

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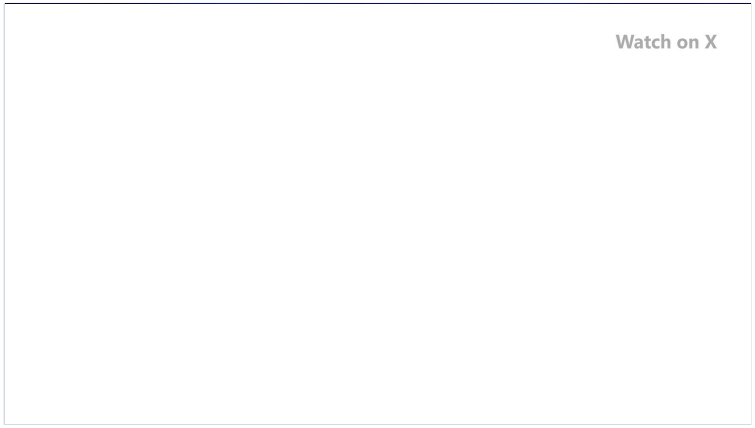

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Herman Kahn is clear, in *On Thermonuclear War,* about the *mobilization problem for bulky conventional weapons* (unlike compact nukes out of sight in subs, ICBMs or airfield igloos) triggering off wars such as WWI, quoting on page 359 the assistant chief of the French General Staff, General Boisdeffre's explanation to Russian Tsar Nicholas: "The mobilization is the declaration of war. To mobilize is to oblige one's neighbor to do the same. ... Otherwise, to leave a million men on one's frontier, without doing the same simultaneously, is to deprive oneself of all possibility of moving later; it is placing oneself in a situation of an individual who, with a pistol in his pocket, should should let his neighbor put a weapon to his forehead without drawing his own." Kahn also emphasises the ironic pacifism of the Liberal Party Cabinet of the UK Government which set off WWI by declaring war on Germany (which had not declared war on Britain and did not want war with Britain):

"The [August 1914 WWI-declaring British Liberal Party government] Cabinet was overwhelmingly pacific. At least three-quarters of its members were determined not to be drawn into a European quarrel, unless Great Britain were herself attacked, which was not likely. ... They did not believe that if Germany attacked France, she would attack her through Belgium [triggering WWI via the 1839 Treaty of London, an analogy to our guarantee to defend Ukraine in the 1994 Budapest Memorandum]..." - Churchill, The World Crisis, v1, Charles Scribner's Sons, 1923, p211 (quoted by Kahn, On Thermonuclear War, p387). Winston Churchill, himself a Liberal government minister when war was declared in 1914 (he had to rejoin the Conservatives after the Liberal Party was run-over by its role in declaring WWI) was anti-militarism expenditure in general, like his father Lord Randolph Churchill (who in 1886 resigned as Conservative Chancellor of the Exchequer, in an effort to reduce arms expenditure). On 13 May 1901, Winston Churchill, Boer War hero and newly elected Conservative MP, took up his late father's anti-militarism position in his speech to the House of Commons: **"I regard it as a grave mistake in Imperial policy to spend thirty millions a year on the Army. I hold that the continued increase in Army expenditure cannot be viewed by supporters of the Government without the greatest alarm and apprehension, and by Members who represent working class constituencies without extreme dislike. I desire to urge considerations of economy on His Majesty's Government, and as a practical step that the number of soldiers which they propose to keep ready for expeditionary purposes should be substantially reduced. ... Once you are so unfortunate as to be drawn into a war, no price is too great to pay for an early and victorious peace. All economy of soldiers or supplies is the worst extravagance in war. I am concerned only with the Estimates for the ordinary service of the year, which are increasing at such a rate that it is impossible to view them without alarm. Does the House realise what British expenditure on armaments amounts to? See how our Army Estimates have grown - seventeen millions in 1894, eighteen in 1897, nineteen in 1899, twenty-four in 1900, and finally in the present year no less than twenty-nine millions eight hundred thousand."** However, by 1908 Churchillhad reversed this, in the light of Germany militarism, which required British expenditure on an arms race to maintain credible deterrence. Churchill was a realistic, deterrence-supporting pacifist, not a warmonger. Conventional weapons only failed as a credible deterrent in 1914 because of the instability caused by the need to mobilize them along frontiers, something not needed with long-range nuclear weapons now!

Herman Kahn on p371 states of Churchill's *The World Crisis, volume 1:* "I know of no better textbook on the subject of war, prewar preparations, and peacetime risks. ... Let me now quote Churchill on the possibility of a surprise attack. He is discussing the tension during the 1911 Agadir crisis. Lloyd George had just made a speech with the idea of forcing the German government to back down. The Germans did not like it *... 'It is too foolish, too fantastic to be thought of ... No one would do such things. Civilisation has climbed above such perils. The interdependence of nations in trade and traffic, the sense of public law, the Hague Convention, Liberal principles, the Labour Party, high finance, Christian charity, common sense have rendered such nightmares impossible. Are you quite sure? It would be a pity to be wrong.'* (W. S. Churchill, The World Crisis, v1, Charles Scribner's Sons, NY, 1923, p45)." Kahn then explains the analogy of 1930s fears of gas annihilation to thermonuclear ignorance and propaganda:

"War, unrestricted war, seemed like an unbelievable nightmare and therefore somehow unreal. *The very terror of war [annihilation by exaggerated gas or incendiary or high explosive bombing on cities] powerfully reinforced all those who wished to reject military solutions or palliatives in favor of much more attractive schemes for world government or universal disarmament or some major step in that direction.[Italics are Herman Kahn's own.]* ... In fact it was not until April 1939, after the second invasion of Czechoslovakia, that the British went all out ... It was by that time far too late." - Herman Kahn, On Thermonuclear War, p377. When Kahn was writing, the USA had massive nuclear superiority in both tactical and strategic weapons. Today, however, the situation is reversed and Kahn's warning is pertinent again: Russia and its allies China, North Korea and Iran have superiority. (We also need to remember the 1939-40 phoney war; it was Churchill not Hitler who initiated city bombing in 1940, deliberately in order to divert enemy bombing from RAF airfields that were needed to retain air superiority and prevent an invasion succeeding. Churchill was only able to do this because Britain had civil defense to mitigate the effects of the retaliation when the RAF were unable to entirely stop enemy attacks. Without civil defense, either Churchill wouldn't have been able to do this, so the airfields might have been put out and an invasion done, or else casualty rates 60 times higher could have resulted in the Blitz (the ratio of WWI bombing casualties per ton of bombs on unprotected civilians, to WWII, when people had shelters).

On page 378 of On Thermonuclear War, Herman Kahn emphasises (italics are Kahn's own): "*The whole history of the 1933-1939 period is a clear example of the failure of Type II [deterrence of major provocations like invasion of an ally] and Type III Deterrence [deterrence of minor provocations like rearmament, militarization, etc.].* These failures occurred because neither the British nor the French [don't forget the USA which passed its Neutrality Act in 1935!] had the resolve to use their superior military power or their superior resources to check German aggression until it was too late. ... The longer they put off using their superior power the less credible it became that it would ever be used. Finally their power itself became inferior so that even when its use was seriously threatened, the German government was no longer impressed." Kahn quotes Churchill: "We had been reduced in those five years [of anti-war disarmament and then anti-war appeasement propaganda about gas knockout blow escalations wiping out humanity, 1933-1938, cumulating in the worthless piece of paper signed by Adolf Hitler on 30 September 1938 promising peace for our time] from a position of security so overwhelming and so unchallengable that we never cared to think about it. We have been reduced from a position where the very word 'war' was considered one which would be used only by persons qualifying for a lunatic asylum." - Winston

Churchill, *Blood, Sweat, and Tears*, G. P. Putnam's Sons, NY, 1941, p60 (quoted by Herman Kahn on page 379 of On Thermonuclear War, where Kahn comments: "Hitler and some of his staff were victims of overconfidence. By the time the war started, they felt that they had more than enough of a lead to win. ... the war would doubtless be short [precisely the delusion of Russia when invading Ukraine, in 2022] ..."

Herman Kahn on page 378 of On Thermonuclear War quotes Air Marshall Sir John Slessor's *Central Blue* Praeger, NY, 1957, which states the reality on page 161: by 1938 Britain was spending £300 million a year on arms, contrasted to well over £1000 million a year then being spent on arms by the Nazis. Thus, the Nazis were far outrunning Britain so that every day of peace that "Chamberlain bought with his peace agreements" actually gave the Nazis a bigger lead; Britain was not "buying time for rearmament to fight" contrary to financially illiterate historians, journalists and other Chamberlain "pacifism" fans to this day, rather, Chamberlain was *helping the Nazis prepare better than the UK* by delaying war! If the enemy is getting way bigger than you by the day, you don't do yourself any favours by delaying the fight. The fact that this is still "disputed" by left wing historians to back disarmament in the face of Russia today just demonstrates how Comintern's legacy of infiltration of the Western universities and mass media continues to this day.

One final thought from Kahn's On Thermonuclear War is his Figure 8 on page 469, showing the relationship between missile accuracy, warhead yield, and the 50% probable target peak overpressure at the intended ground zero (the intended ground zero never debunked with 100% probability in reality, due to inaccuracies in the missile guidance system, never mind the risk of warhead malfunction/ABM interception): in 1960 American 10 megaton warheads were placed on missiles with good accuracy gyroscopes, CEP = 1 mile, which gave 50% probability of delivering 100 psi peak overpressure to the intended ground zero, destroying typical 1960 era primitive (not shock protected) missile silos. So the USA could take out hard Russian ICBMs at that time. But the corresponding 10 megaton Russian warheads were (supposedly) on less accurate missiles, CEP = 5 miles, which would only deliver about average 4 psi peak overpressure at the intended "ground zero" (because they would on average miss targets by miles), so Russia couldn't in 1960 usefully target American ICBM's in their silos! If they did so, they would fail with high probability, because the hard targets would on average receive only 4 psi, not the 100 psi needed to wreck them. Thus, Russia had to target wood-frame American houses with ICBM's in 1960, the only yank assets that could be wrecked by 4 psi, not missile silos. In effect, missile accuracy forced America and Russia to have different nuclear war strategies: America could use "counterforce" targetting on hard Russian silos, but the less accurate Russian missiles of the same yield class would have to be targetted on "soft countervalue" targets, like residential areas. This asymmetry in USA and Russian targetting was often promoted by "arms control and disarmament" promoters like Hans Bethe as preventing a direct comparison; Bethe wrote articles in journals denying Russian superiority in megatonnage because they had less accurate missiles. But this is fake news, because Russia's a dictatorship, America isn't. Which is more dangerous, Russia wiping out American civilians or America wiping out Russian ICBMs? Duh. One strategy is evil, the other is just war.

Kahn also went into the problem with populist notions of "knockout blow" 1st strikes, versus 2nd strikes in nuclear war. In summary, Russia now has superiority in tactical neutron weapons, protected deep shelters and the secret Metro 2 underground railway to evacuate the dictators from the Kremlin to safe rural bunkers in the event of a nuclear strike on Moscow (as well as many dual-purpose cheap but hard underground car parks/shelters and tube stations/shelters and basement cafes/shelters, with double blast doors fitted for civilians), and it has placed a large number of ICBMs on mobile launchers which can move around (out of the 4 psi damage zone) while USA ICBMs are inflight. So, since America doesn't have such civil defense or mobile ICBM launchers or neutron bombs, it doesn't really have a credible deterrent against Russia, but Russia has a credible deterrent against American nuclear leverage. This was claimed to reduce nclear war risks by demonstrating to Russia that it has nothing to fear from America unless Russia launches a first strike on America, when what survived of American military assets (e.g. some Trident SLBMs) could disarm themselves by setting off a firework display over the Kremlin (while the Russians survive in hard double-blast doored shelters). This limited American "second strike capability" was supposed to be "safe deterrence". However, as we have seen, it hasn't stopped Russia invading Ukraine, using Novichok and Polonium-210 in the UK, etc. In other words, it's "minimal deterrence" that leaves open the key risk Kahn warned about, a repetition of the 1930s fiasco that was designed to minimise the risk of "accidental war" by peace treaties with dictators (who interpreted them as signs of virtual signalling weakness to be laughed at and ignored), but did the opposite, causing WWII. Mathematically, the error is that the Iwo Jima proved Lanchester Equations of war are being disregarded in preference to Morgenstern and von Neumann's "Minimax theorem" of game theory. The Lanchester Equations prove that the probability of victory in war (i.e. the rate of disarmament of the weaker side) is proportional to the square of the ratio of forces (surviving a 1st strike) and you need thus to risk using as much force as you can; the Minimax theorem by contrast says that to win a rule-abided game you should take minimal risks and *not* "escalate to win". The Minimax theorem is disproved by the US Strategic Bomb Survey WWII pre-nuclear attacks data, as well as the results in Vietnam and other wars of "gradual punishment" to try to coerce the enemy into defeat. The Lanchester equations model the history of victorious combats. All current Western nuclear policy is based on Minimax (the McNamara legacy), not Lanchester!

To recap for clarity in the reader's mind: Kahn's 1960 *On Thermonuclear War* was written while Eisenhower/Dulles "Massive retaliation" (aka "MAD" = Musual Assured Destruction, aka "Type 1 Deterrence") was in play, although General Maxwell D. Taylor (later Kennedy's limited nuclear war adviser), Henry Kissinger (in his 1957 "Nuclear Weapons and Foreign Policy"), and people like Kahn's childhood friend and RAND Corporation colleague, physicist Samuel Cohen, were already advocating cleaner enhanced neutron weapons to credibly deter the invasions that triggered terrible conventional wars like WWI, WWII, the 1950-53 Korean War, etc. (note that contrary to "arms control and disarmament" liars, the "neutron bomb" is *not limited to low kiloton yields, but can be used as a 10 megaton Ripple II 99.9% clean device for the case of wide area fronts of tanks crossing borders, provided a precursor burst of similar yield is detonated 5-25 seconds in advance, in order to reduce air density in the target area behind the shock front of the first burst, and so provide hydrodynamic enhancement of neutrons from the second explosion*). Kahn considered a wide range of deterrent postures and kinds of wars in his book, and countermeasures in excruciating detail and cold-bloodedness, which put off many idealists from even bothering to read it carefully, let alone implement all of its recommendations! The key problem Kahn found for today's "minimal deterrence policy" was that arms control plus Russian tactical nuclear weapons and shelters superiority, kills off any hope deterring the kinds of "Type II deterrence" needed to prevent enemies from invading 3rd parties, i.e. the invasion of Ukraine 2022 couldn't be credibly deterred by saying "if you do that, Putin, I'll kill myself by disarming my country by firing all my weapons at you for an imaginary knockout blow" (most of which will be negated by Russian ABM, or negated by Russian shelters, or negated by Russian mobile ICBM's simply starting their engines and driving outside the 4psi blast overturning radius while the pre-programmed ICBM's are in flight from USA to their previous locations in Russia identified on satellite photos prior to pressing the button)!" *This simply isn't a credible deterrent to kind of situations which have initiated 100% of the world wars in history! WTF has gone wrong with these people? Comintern propaganda has infected top dogs for decades with "Jaw, jaw, not war, war" appeasement crap (Winston Churchill was the only person in human history in the Cabinet of the country triggering BOTH World Wars, tried to deter BOTH, and FAILED both times, but is somehow remembered in propaganda history as a "great orator" despite failing to sway public opinion pre-WWI and pre-WWII to deter the wars; he may have been the most sensible person on both occasions but the result was still a World War each time!). Maybe it's partly down to luddite opposition to progress (the sin of nuclear technology stagnation caused by decades of bans of tests for improved, more credible nuclear deterrent warhead options), and partly down to nostalgic "last war" style military inertia, of the kind that sent Polish horse mounted (cavalry) divisions into battle with Panzer tanks in 1939.* The key problem is that the current "protected second strike capability" ("we will never strike first!") is that the enemy leadership may develop the mentality of Hamas in October 2023. If so, that very limited "minimum deterrence" will fail, and there will be a nuclear war. Also, Russia has threatened to nuke non-nuclear Sweden and non-nuclear Ukraine, just as America nuked non-nuclear Japan in 1945 twice, so the CND fantasy of securing a "nuclear free zone" by unilateral disarmament is just a pipe dream. If we continue as we have done until now, Russia and other enemy states will become an ever more war-minded alliance intent on our nuclear annihilation.

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"Russia has launched several air attacks on Ukraine this week, costing Moscow a reported £1.1bn. Last night, Kyiv came under drone attack for the third night in four days, with debris injuring people and damaging buildings." - news.sky.com/story/ukraine-... And when the Roubles run out, Show more

news.sky.com
Ukraine war latest: Large-scale drone attacks on Kyiv lead to civilian injur...
Russia launched 250 long-range drones and 14 ballistic missiles at Kyiv overnight, injuring at least 15 civilians, according to Ukrainian officials. ...

1:41 PM · Aug 29, 2024

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Democrats in 2021 accelerated the pull out from Afghanistan to the extent that people flooded runways and later fell off undercarriages of the escaping aircraft (worse than the organized rooftop queue for the last Helicopters leaving Saigon, in 1975!), to pacify disarmers, peace protestors, liberals etc., like Putin and Hamas, then Putin and Hamas realise they can invade Ukraine (2022) and Israel (2023) with impunity. INNOCENT PEOPLE ARE KILLED WHEN YOU GIVE A GREEN LIGHT TO DICTATORS. We need credible deterrence. Like, NOW, to stop these invasions. Duh. The entire problem is down to the lying left wing Lenin lawyer "virtual signalling" political tactic lampooned years ago by Bob Monkhouse's advice to succeed by "faking sincerity" ("Nukemap" lying crap is an excellent example of how the old 1930s "guaranteed gas knockout blow annihilation within hours of war being declared" propaganda horsecrap is resurrected for mainstream media lying fake "pacicism" today). That deliberate abusive lying propaganda by the herd mentality "autistic groupthink" thugs of left wing bigots backfires, just as with right wing thugs, and costs lives.

Tip for deluded and lazy journalists who don't have time to check the full facts below: there's a very brief summary of deliberate fake news and nuclear weapons lying ("Nukemap liars etc") effects evidence debunking CND and other pro-Russian nuclear superiority (unilateral Western disarmament/arms control) "elitist virtual signalling" fascism linked here. It's about time for the fashion obsessed mass media to stop repeating 1930s lying propaganda (with "gas escalation annihilation" changed to "nuclear escalation annihilation" by paranoid lying pseudo-pacifists who engineer every invasion, every war, every massacre and ban civil defense shelters into the bargain, using lying to win so-called "Nobel peace prizes" from charlatans dressed up as celebrity elitists with pseudo Communist political cards on open display): *"there is no way to prevent immediate gas annihilation of humanity due to aerial war escalation in a war, so we must disarm to prevent disaster and accommodate the Nazi terrorists as friends and collaborators in the name of God".* Maybe it's about time, too, for those claiming to be "PhD historians" and "PhD physicists" to get out of their ivory towers of elitist fascist "communism" (i.e. the deliberate "pipe dream" of equality of money, not the achievable reality of equality of freedom of speech, the kind of humane decency no card-carrying/BBC supporting, elitist "Communist" will ever support in any way, shape or form, because they know their lies will instantly be exposed as such in free debate) and start to tell the truth, not one-sided pro-eugenics or other pseudoscience crap that panders to mass delusions like fairy tales.



It's impossible to tell precisely why this 1930s "gas war will escalate within hours and wipe out everybody" pro-Nazi appeasement escalation-doomsday lying and Vietnam era "don't escalate to win" anti-military lunacy is still prevailing in America and Germany, but nuclear heebie jeebies based on fake "Nukemap" style crap is certainly a big factor, plus the fact that both countries lost major wars with costly financial and psychosis implications (Germany lost WWI and WWII; America lost Vietnam, Iraq, Afghanistan). Someday victory may become fashionable again, probably only after "virtue signalling faked pacifist sincerity" is debunked by Putin.

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Looks like the commie Russian siding thug Joseph Rotblat, a Nobel Peace Laureate for giving the green card to Putin like fellow "pacifists" did to the Kaiser to begin WWI and to Hitler, starting WWII. But from his "diplomacy" he wants WWIII by provoking war, not Western Show more

> **NEXTA** @nexta_tv
> Borrell calls for lifting all restrictions on the use of Western weapons for strikes on Russia
>
> The EU diplomatic chief calls on partner countries not to restrict Ukraine from using the weapons provided to it for strikes against Russia. He also asks European countries to provide

11:53 AM · Aug 29, 2024

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The Russian multistaged 1000 megaton (1 Gt) bomb design goes back to Leo Szilard's anti-H bomb "doomsday machine" propaganda news conference of 1950. As Herman Kahn argued, it's not a credible deterrent, is hard to deliver (it would be the size of a large submarine), and the Show more

> **Anton Gerashchenko** @Gerashchenko_en
> "For the purpose of destroying the whole continent, it would be good to have a not 10-megaton, but a 1000-megaton bomb so that the earth's axis would shift," Russian propagandists laugh.
>
> They also discuss how many warheads are necessary to destroy Great Britain.

9:30 AM · Aug 22, 2024

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Russian state TV channel 1 admits invasion causin pain, but then adds that Russia is a nuclear state. Get prepared for possible Putin resumption of nuclear weapons coercion, or other nuclear saber rattling such as an EMP test as occurred on 22 October 1962, during Cuban crisis!

1:54 PM · Aug 15, 2024

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"We are ready to use weapons, including any weapons — including the weapons you mentioned — if it is a question of the existence of the Russian state **or damage to our sovereignty and independence**," Putin added in the interview ... - **https://www.news18.com/world/putin-says-russian-nuclear-weapons-more-advanced-than-in-us-8814525.html**

Anton Gerashchenko
@Gerashchenko_en · **Follow**

"For Russia, the strategic defeat means the end of its statehood and thousand-year history. Then the question arises - why should we be afraid? Isn't it better to go to the end?" - Putin

He says it's logical.
Following formal logic, that means the end of Putin.

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5:55 PM · Jun 20, 2024

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Are you a retired NATO F-16 pilot? Then you are needed to help defend liberty against the Ruskies. Ukraine doesn't have enough F-16 pilots available.

> **Anton Gerashchenko** @Gerashchenko_en
> ‼️ This is very important. Friends, please repost and tag those who can make it happen, not just in the US but in all NATO countries that have pilots trained to fly the F-16s.
>
> As you probably know, there are currently not enough F-16 pilots to fly the aircraft provided to

1:48 PM · Aug 15, 2024

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Sarah Rainsford @sarahrainsfordbbc.bsky.social
@sarahrainsford · **Follow**

I arrived in Moscow for the BBC in 2000 on the day Russia admitted to the Kursk submarine disaster. Now, in Kursk, Putin's struggling with new disaster - as his war vs Ukraine rebounds

I've witnessed Russia's long slide to this point, close-up. It's all in my book - out today 👇

9:12 AM · Aug 15, 2024

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Hamish DBG
@HamishDBG · **Follow**

Offensive is usually the best form of defence - looks like AFU really understand combined arms manoeuvre warfare @HamishDBG @Barnes_Joe

telegraph.co.uk
Ukrainian forces descend on Belgorod in fresh attempt to break Russian ...
Kyiv launches attack on checkpoint having already captured 500 square miles of the neighbouring Kursk region

4:29 PM · Aug 27, 2024

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Answer: in case Putin at some point hits the vodka, sees red at the invasion of Russia, and presses a button. Hitler had 12,000 tons of tabun by 1945 - equivalent to Russia's nuclear stockpile in terms of killing potential - but never used a drop of it. But the RISK was Show more

> **Lev Havryliv** @LevHavryliv
> The situation has materially changed.
>
> Russia's red lines have been demonstrated to be nonexistent.
>
> Why do the "escalation managers" still have President Biden's ear?
>
> @POTUS @JakeSullivan46 @SecDef @SecBlinken

1:41 PM · Aug 15, 2024

1 Reply Copy link

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Ukrainian President Zelenskyy on Putin's (aka Russian State TV Channel 1's) recent nuclear war threats: Zelenskyy thinks that Putin loves life too much to start a nuclear war. True, up to a point, but: (1) Putin could escalate nuclear threats without much risk of being wiped out Show more

Last edited 10:13 PM · Aug 27, 2024

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T 6/59

[redacted] 11/7/84

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UNITED KINGDOM ATOMIC ENERGY AUTHORITY

ATOMIC WEAPONS RESEARCH ESTABLISHMENT

REPORT No. T 6/59 BB005

OPERATION ANTLER

Target Response Group
(Group Leader Plans: E. R. Drake Seager)
(Group Leader Operations: Lt. Col. E. T. Wray, REME)

The Effects of Blast on Dummies and Scout Cars

Maj. A. R. F. Martin, RA

A.W.R.E.,
Aldermaston, Berks.

[redacted]
UNCLASSIFIED

August, 1959



Antler-2 nuclear test, Maralinga, 1957
6 kt



FIGURE 23. DUMMY IN TRENCH AT 2390 ft BEFORE FIRING

FIGURE 24. DUMMY IN TRENCH AT 2390 ft AFTER FI



G.Z.

FIGURE 22. ROUND 2. SCOUT CAR AT 2200 ft AFTER FIRING. NOTE SOIL DISPLACED BY WHEEL WHEN CAR MOVED SIDEWAYS 4 INCHES



G Z

FIGURE 21. ROUND 2. SCOUT CAR AT 1730 ft AFTER FIRI
NO APPARENT DAMAGE TO DUMMY OR SCOUT
WHICH SIMPLY TURNED OVER ONTO ITS SID

-35-

30 dummies were exposed to Buffalo and another 30 to Ant nuclear tests at Maralinga. Antler-3 had severe precurso



G.Z.

FIGURE 4. ROUND 2. PRONE FACING DUMMY AT 1460 ft
NOTE OVERALL ALMOST OFF, BUT FLESH ONLY
SLIGHTLY SCORCHED



G.Z.

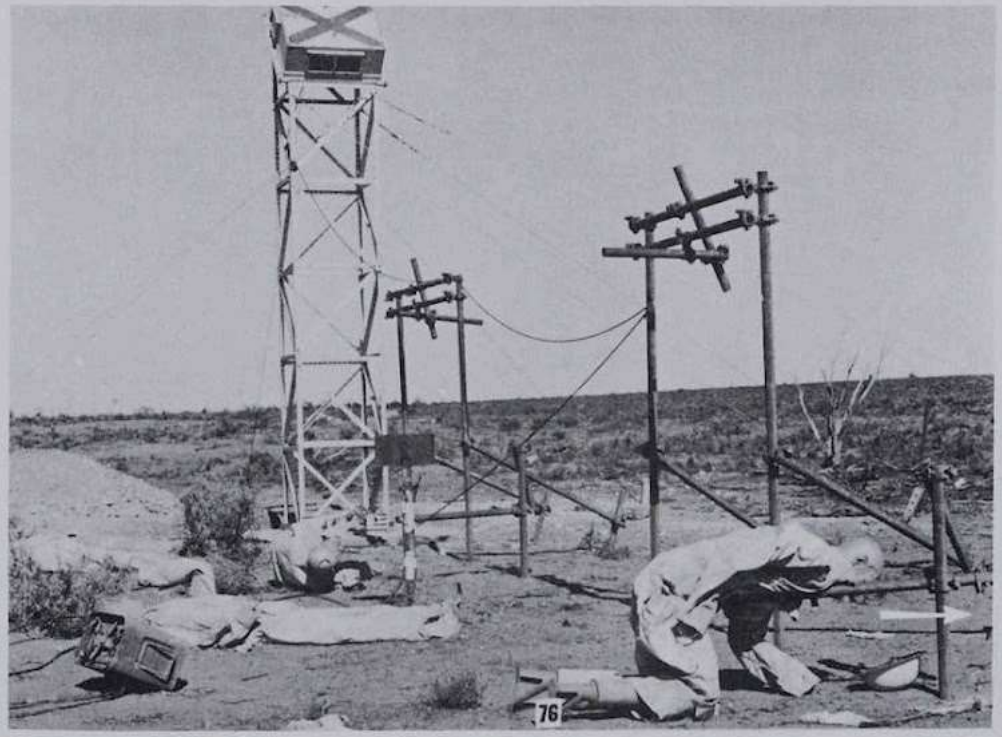


FIGURE 12. ROUND 2. DUMMIES AT 3100 ft AFTER FIRING. NOTE
CROUCHING FACING DUMMY HAS REMAINED ON THE
SUPPORT AND HELMET HAS DROPPED OFF AFTER
POSITIVE PHASE



FIGURE 5. ROUND 2. PRONE FACING DUMMY AT 1840 ft
NOTE HELMET WHICH REMAINED ON HEAD
DURING POSITIVE PHASE OF BLAST

Antler-2 (6kt) and Antler-3 (25 kt) nuclear tests: from AWRE T6/59



FIGURE 13. ROUND 3. CHAMP AT 1860 ft. NOTE LOWER HALF OF DUMMY DRIVER IN WRECKAGE

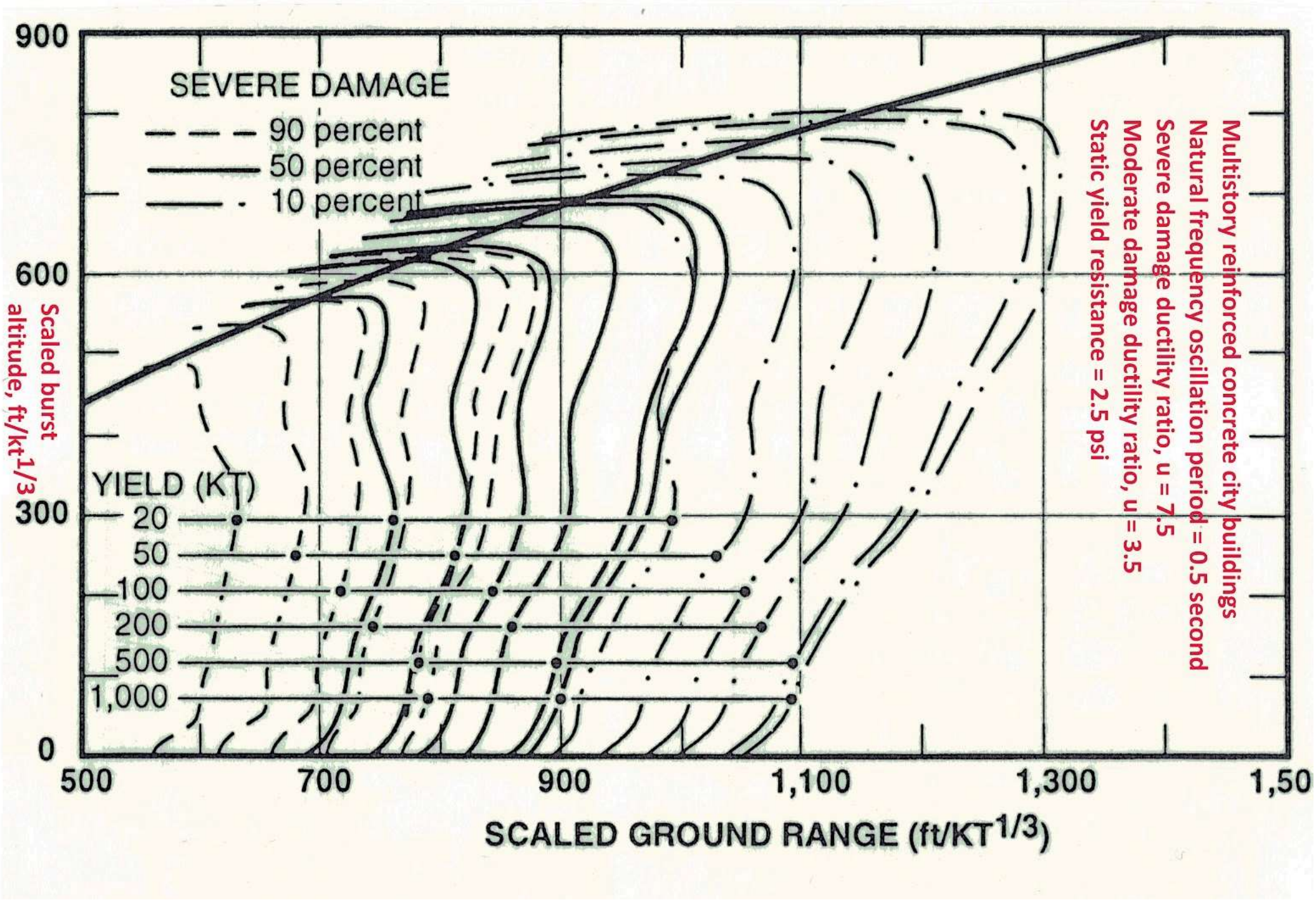

SEVERE DAMAGE
90 percent
50 percent
10 percent
YIELD (KT)
20
50
100
200
500
1,000
Multistory reinforced concrete city buildings
Natural frequency oscillation period = 0.5 second
Severe damage ductility ratio, u = 7.5
Moderate damage ductility ratio, u = 3.5
Static yield resistance = 2.5 psi
Scaled burst altitude, ft/kt1/3
900
600
300
0
500
700
900
1,100
1,300
1,50
SCALED GROUND RANGE (ft/KT1/3)

Figure 15.20. Moderate and Severe Isodamage Curves for Structure Category 15.2.12 for Yields Ranging From 20 KT to 1,000 KT.

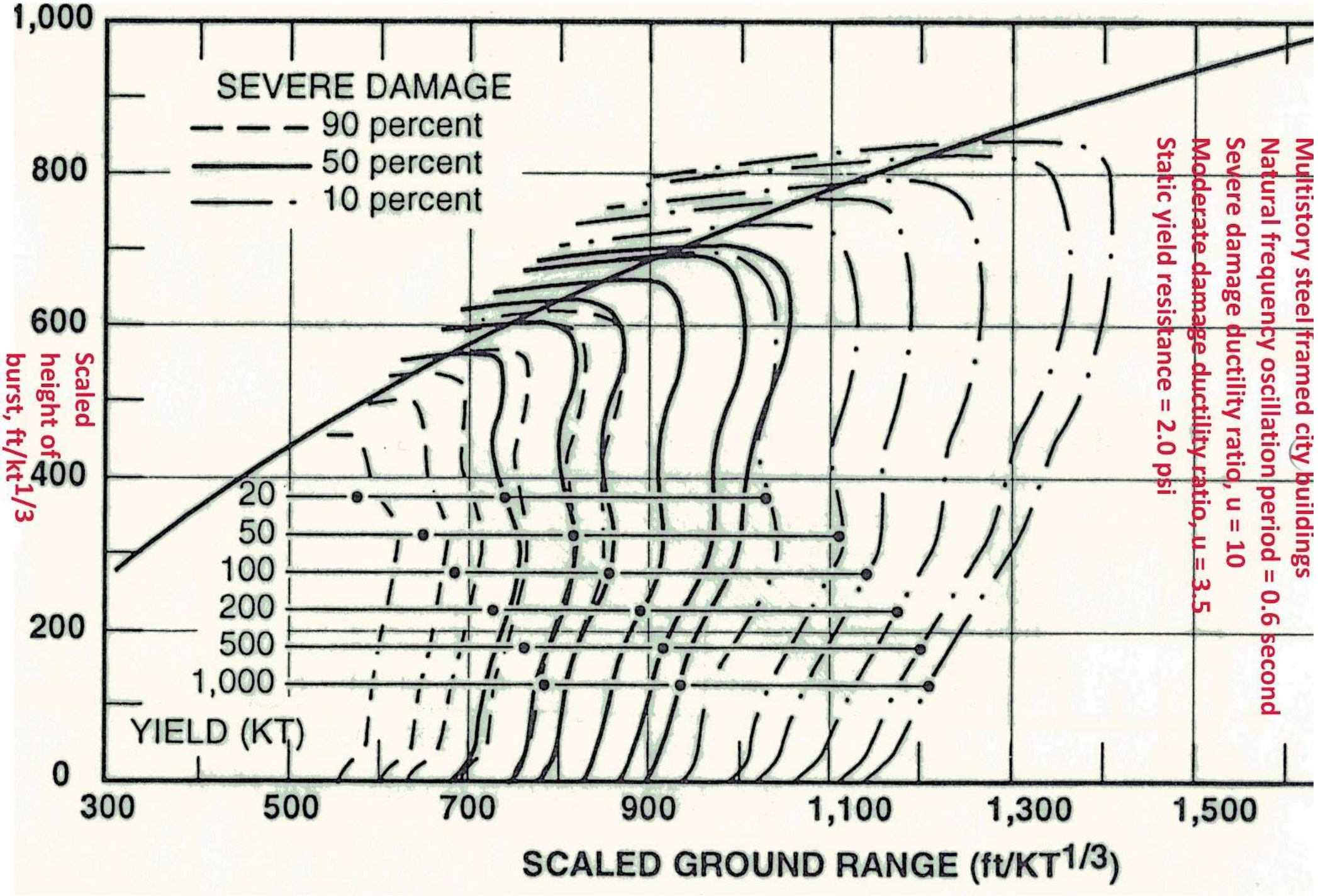

SEVERE DAMAGE
90 percent
50 percent
10 percent
20
50
100
200
500
1,000
YIELD (KT)
Scaled height of burst, ft/kt1/3
SCALED GROUND RANGE (ft/KT1/3)
1,000
800
600
400
200
0
300
500
700
900
1,100
1,300
1,500
Multistory steel framed city buildings
Natural frequency oscillation period = 0.6 second
Severe damage ductility ratio, u = 10
Moderate damage ductility ratio, u = 3.5
Static yield resistance = 2.0 psi

Figure 15.18. Moderate and Severe Isodamage Curves for Structur Category 15.2.10 for Yields Ranging From 20 KT to 1,000 KT.

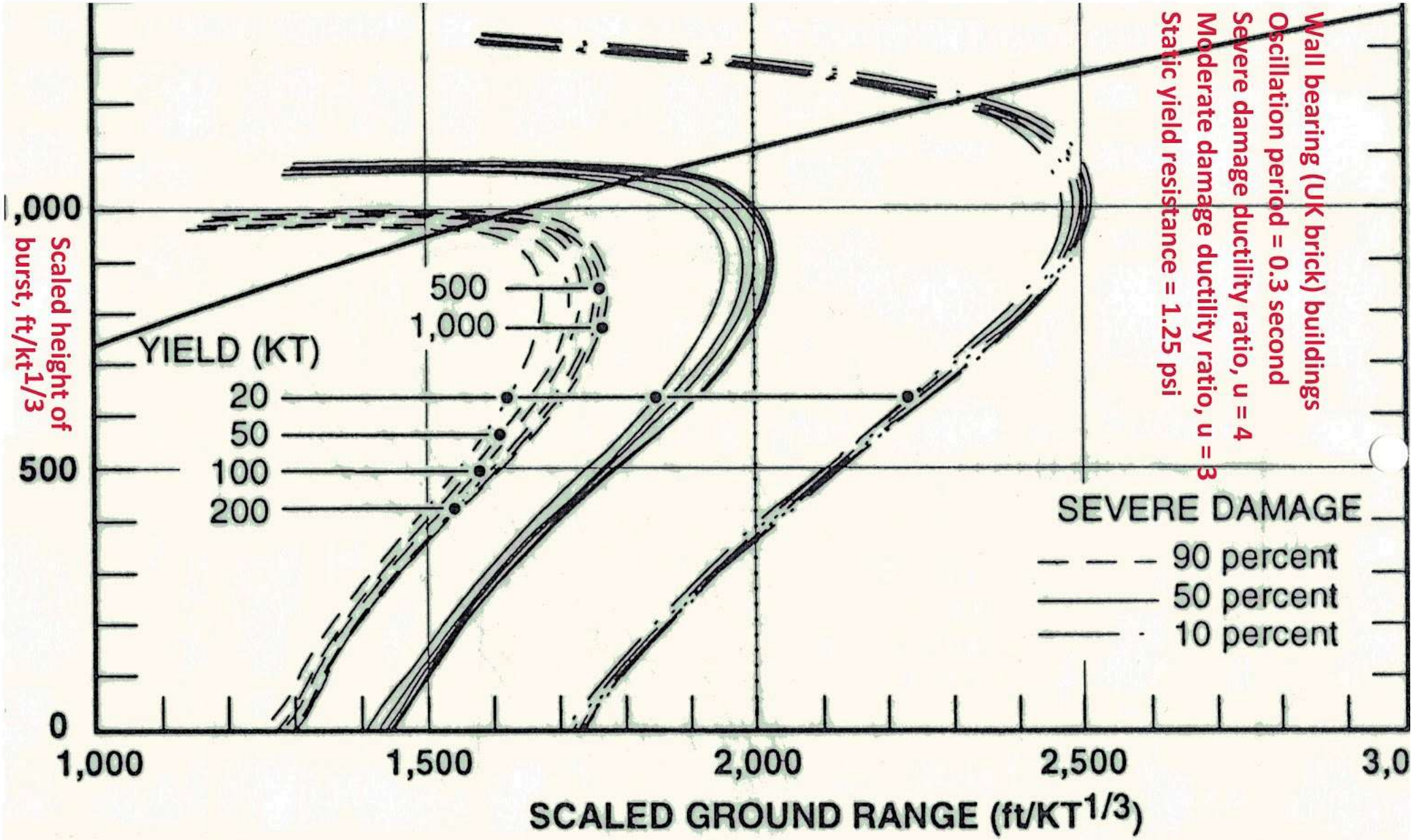
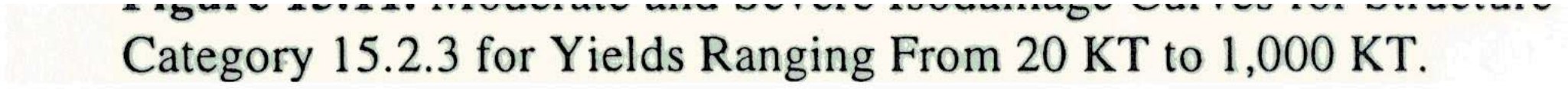


Figure 15.11. Moderate and Severe Isodamage Curves for Structure


Category 15.2.3 for Yields Ranging From 20 KT to 1,000 KT.

ABOVE: The **1996 Northrop EM-1 (*see extracts below showing protection by modern buildings and also simple shelters very close to nuclear tests; note that Northrop's entire set of damage ranges as a function of yield for underground shelters, tunnels, silos are based on two contained deep underground nuclear tests of different yield scaled to surface burst using the assumption of 5% yield ground coupling relative to the underground shots; this 5% equivalence figure appears to be an exaggeration for compact modern warheads, e.g. the paper "Comparison of Surface and Sub-Surface Nuclear Bursts," from Steven Hatch, Sandia National Laboratories, to Jonathan Medalia, October 30, 2000, shows a 2% equivalence, e.g. Hatch shows that 1 megaton surface burst produces identical ranges to underground targets as a 20 kt burst at >20m depth of burst, whereas Northrop would require 50kt*) has not been openly published, despite such protection being used in Russia**! This proves **heavy bias against credible tactical nuclear deterrence of the invasions that trigger major wars that could escalate into nuclear war (Russia has 2000+ dedicated neutron bombs; we don't!) and against simple nuclear proof tested civil defence which makes such deterrence credible and of course is also of validity against conventional wars, severe weather, peacetime disasters, etc.**

The basic fact is that nuclear weapons can deter/stop invasions unlike the conventional weapons that cause mass destruction, and nuclear collateral damage is eliminated easily for nuclear weapons by using them on military targets, since for high yields at collateral damage distances all the effects are sufficiently delayed in arrival to allow duck and cover to avoid radiation and blast wind/flying debris injuries (unlike the case for the smaller areas affected by smaller yield conventional weapons, where there is little time on seeing the flash to duck and cover to avoid injury), and as the original 1951 SECRET American Government "Handbook on Capabilities of Atomic Weapons" (limited report AD511880L, forerunner to today's still secret EM-1) stated in Section 10.32:

"PERHAPS THE MOST IMPORTANT ITEM TO BE REMEMBERED WHEN ESTIMATING EFFECTS ON PERSONNEL IS THE AMOUNT OF COVER ACTUALLY INVOLVED. ... IT IS OBVIOUS THAT ONLY A FEW SECONDS WARNING IS NECESSARY UNDER MOST CONDITIONS TO TAKE FAIRLY EFFECTIVE COVER. THE LARGE NUMBER OF CASUALTIES IN JAPAN RESULTED FOR THE MOST PART FROM THE LACK OF WARNING."

As for Hitler's stockpile of 12,000 tons of tabun nerve gas, whose strategic and also tactical use was deterred by proper defences (gas masks for all civilians and soldiers, as well as UK stockpiles of fully trial-tested deliverable biological agent anthrax and mustard gas retaliation capacity), it is possible to deter strategic nuclear escalation to city bombing, even within a world war with a crazy terrorist, if all the people are protected by both defence and deterrence.

We have uploaded an online-viewable version of the full text of the 1982 edition of the UK Goverment's Domestic Nuclear Shelters - Technical Guidance, including secret UK and USA nuclear test report references and extracts proving protection against collateral damage, for credible deterrence (linked here).

For a review of this site see: **https://www.nextbigfuture.com/2016/02/are-nuclear-weapons-100-times-less.html which states: "Cook is a master researcher who digs up incredible piles of research on all topics nuclear and the following is digest of various writings of his gathered for easy access centered on the remarkable thesis that the effects of nuclear weapons, while literally awesome, have been exaggerated or misunderstood to an even greater extent, with perhaps very considerable military consequences."** Also see some key extracts from this blog published over at **http://www.militarystory.org/nuclear-detonations-in-urban-and-suburban-areas/** and blog statistics **(over 2.3 million views) linked here** (populist pseudo-critics love to falsely claim that "nobody takes any notice of the truth, justifying their decision to ignore the facts by following the fake fashion herd groupthink agenda"). (Or, **for Field Marshall Slim's "the more you use, fewer you lose" success formula for ending war by winning in Burma against Japan - where physicist Herman Kahn served while his friend Sam Cohen was calculating nuclear weapon efficiencies at the Los Alamos Manhattan Project, which again used "overkill" to convince the opponent to throw in the towel - please see my post on the practicalities of really DETERRING WWIII linked here; this is the opposite of the failure to escalate formula used to drag out war until bankrupcy aka the Vietnam effect**.)

This blog's url is now "www.nukegate.org". When this nuclear effects blog began in 2006, "glasstone.blogspot.com" was used to signify the key issue of Glasstone's obfuscating *Effects of Nuclear Weapons,* specifically the final 1977 edition, which *omitted not just the credible deterrent "use" of nuclear weapons but the key final "Principles of protection" chapter that had been present in all previous editions, and it also ignored the relatively clean neutron bombs which had been developed in the intervening years, as a credible deterrent to the concentrations of force needed for aggressive invasions, such as the 1914 invasion of Belgium and the 1939 invasion of Poland; both of which triggered world wars. Those editors themselves were not subversives, but both had nuclear weapons security clearances which constituted political groupthink censorship control, regarding which designs of nuclear weapons they could discuss and the level of technical data (they include basically zero information on their sources and the "bibliographies" are in most cases not to their classified nuclear testing sources but merely further reading); the 1977 edition had been initially drafted in 1974 solely by EM-1 editor Dolan at SRI International, and was then submitted to Glasstone who made further changes.* The persistent and hypocritical Russian World Peace Council's and also hardline arms controllers propaganda tactic - supported by some arms industry loons who have a vested interest in conventional war - has been to try to promote lies on nuclear weapons effects to get rid of credible Western nuclear deterrence of provocations that start war. Naturally, the Russians have now stocked 2000+ tactical neutron weapons of the sort they get the West to disarm.

This means that they can invade territory with relative impunity, since the West won't deter such provocations by flexible response - the aim of Russia is to push the West into a policy of massive retaliation of direct attacks only, and then use smaller provocations instead - and Russia can then use its tactical nuclear weapons to "defend" its newly invaded territories by declaring them to now be part of Mother Russia and under Moscow's nuclear umbrella. Russia has repeatedly made it clear - for decades - that it expects a direct war with NATO to rapidly escalate into nuclear WWIII and it has prepared civil defense shelters and evacuation tactics to enable it. Herman Kahn's public warnings of this date back to his testimony to the June 1959 Congressional Hearings on the *Biological and Environmental Effects of Nuclear War,* but for decades were deliberately misrepresented by most media outlets. President Kennedy's book "Why England Slept" makes it crystal clear how exactly the same "pacifist" propaganda tactics in the 1930s (*that time it was the "gas bomb knockout blow has no defense so disarm, disarm, disarm" lie*) caused war, by using fear to *slow credible rearmament in the face of state terrorism*. By the time democracies finally decided to issue an ultimatum, Hitler had been converted - by pacifist appeasement - from a cautious tester of Western indecision, into an overconfident aggressor who simply ignored last-minute ultimatums.

Glasstone and Dolan's 1977 Effects of Nuclear Weapons (US Government) is written in a highly ambiguous fashion (negating nearly every definite statement with a deliberately obfuscating contrary statement to leave a smokescreen legacy of needless confusion, obscurity and obfuscation), omits nearly all key nuclear test data and provides instead misleading generalizations of data from generally unspecified weapon designs tested over 60 years ago which apply to freefield measurements on unobstructed radial lines in deserts and oceans. It makes ZERO analysis of the overall shielding of radiation and blast by their energy attenuation in modern steel and concrete cities, and even falsely denies such factors in its discussion of blast in cities and in its naive chart for predicting the percentage of burns types as a function of freefield outdoor thermal radiation, totally ignoring skyline shielding geometry (similar effects apply to freefield nuclear radiation exposure, despite vague attempts to dismiss this by non-quantitative talk about some scattered radiation arriving from all angles). It omits the huge variations in effects due to weapon design e.g. cleaner warhead designs and the tactical neutron bomb. It omits quantitative data on EMP as a function of burst yield, height and weapon design.

It omits most of the detailed data

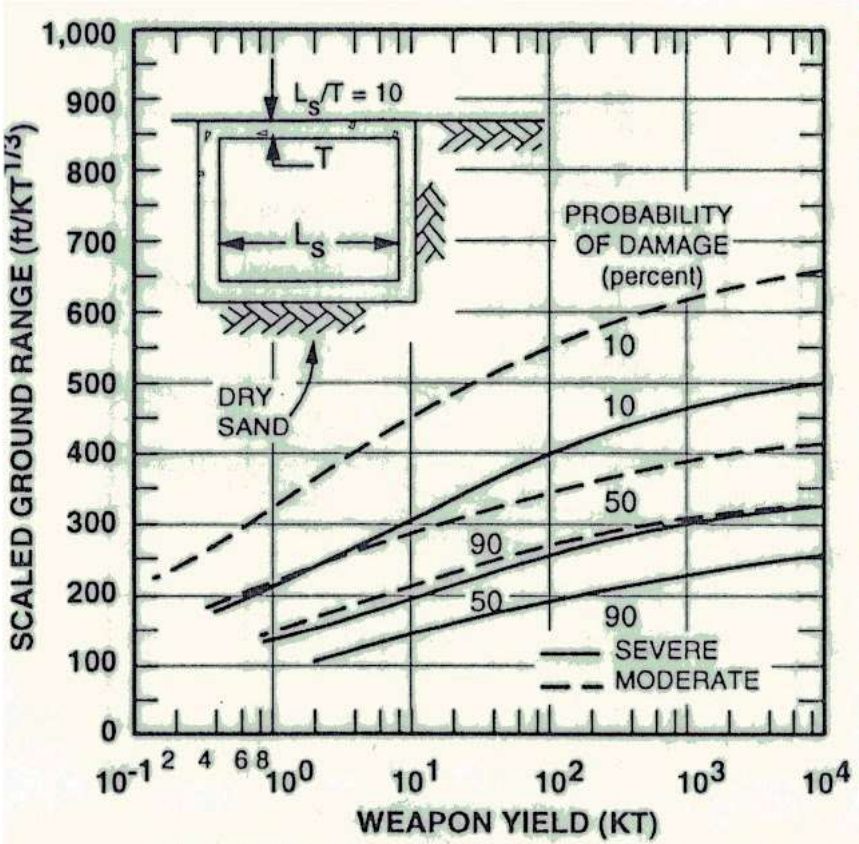


Figure 15.43. Vulnerability Curves for a Flat-Roofed Structure, Aspect Ratio $L_s/T = 10$ (Structure Category 15.3.11) Surface-Flush in Dry Sand.

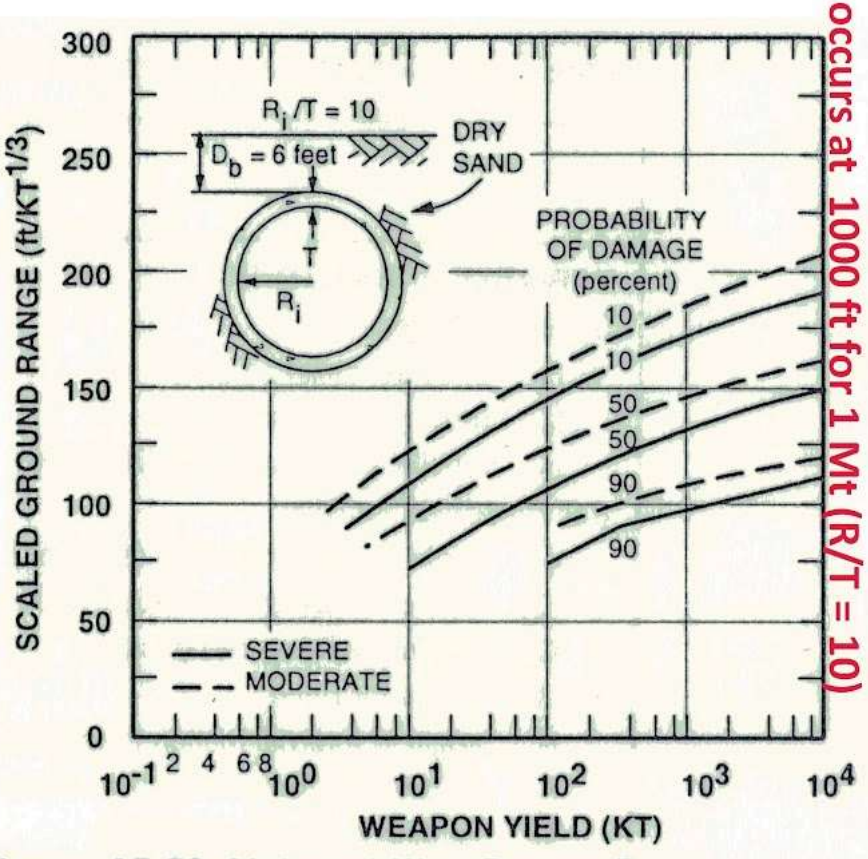
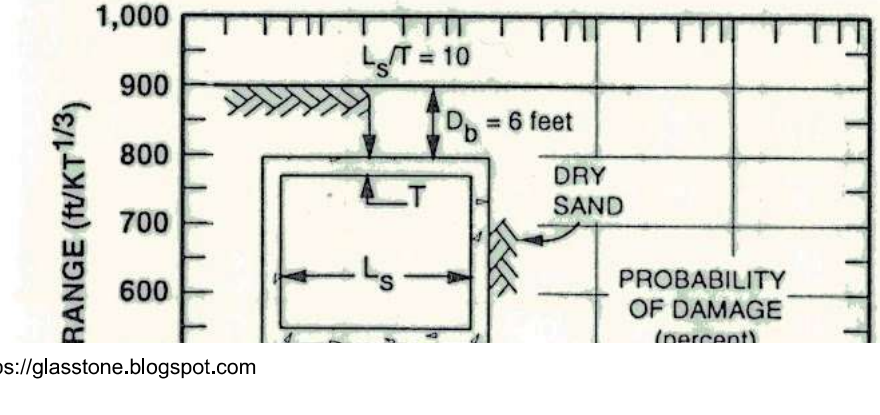
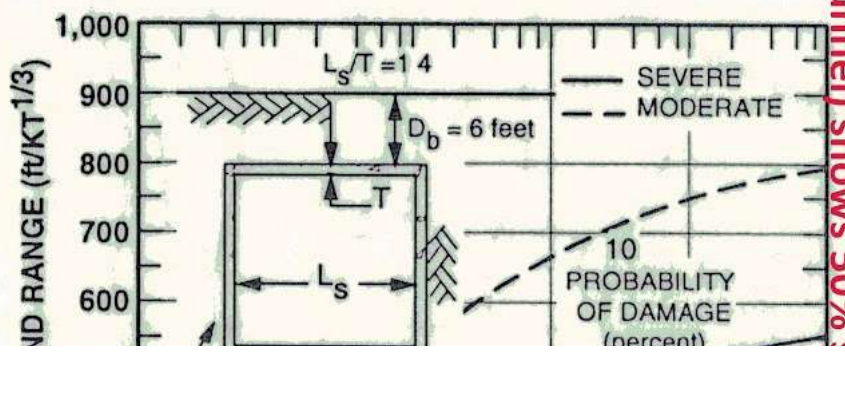


Figure 15.52. Vulnerability Curves for a Horizontal Cylinder, Aspect Ratio $R_i/T = 10$ (Structure Category 15.3.18) Buried in Dry Sand.

Data from two underground tests of different yields, converted to surface b
ground shock/cratering coupling for the surface burst is 5% that for underg
p552)

4500 psi concrete strength. Fig 15.60 for a vertical silo (tunnel) shows 50%
occurs at 1000 ft for 1 Mt (R/T = 10)





collected from Hiroshima and Nagasaki on the casualty rates as a function of type of building or shelter and blast pressure. It fails to analyse overall standardized casualty rates for different kinds of burst (e.g. shallow underground earth penetrators convert radiation and blast energy into ground shock and cratering against hard targets like silos or enemy bunkers). It omits a detailed analysis of blast precursor effects. It omits a detailed analysis of fallout beta and gamma spectra, fractionation, specific activity (determining the visibility of the fallout as a function of radiation hazard, and the mass of material to be removed for effective decontamination), and data which does exist on the effect of crater soil size distribution upon the fused fallout particle size distribution (e.g. tests like Small Boy in 1962 on the very fine particles at Frenchman Flats gave mean fallout particle sizes far bigger than the pre-shot soil, proving that - as for Trinitite - melted small soil particles fuse together in the fireball to produce larger fallout particles, so the pre-shot soil size distribution is irrelevant for fallout analysis).

By generally (with few exceptions) lumping "effects" of all types of bursts together into chapters dedicated to specific effects, it falsely gives the impression that all types of nuclear explosions produce similar effects with merely "quantitative differences". This is untrue because air bursts eliminate fallout casualties entirely, while slight burial (e.g. earth penetrating warheads) eliminates thermal (including fires and dust "climatic nuclear winter" BS), the initial radiation and severe blast effects, while massively increasing ground shock, and the same applies to shallow underwater bursts. So a more objective treatment to credibly deter all aggression MUST emphasise the totally different collateral damage effects, by dedicating chapters to different kinds of burst (high altitude/space bursts, free air bursts, surface bursts, underground bursts, underwater bursts), and would include bomb design implications on these effects in detail. A great deal of previously secret and limited distributed nuclear effects data has been declassified since 1977, and new research has been done. Our objectives in this review are: (a) to ensure that an objective independent analysis of the relevant nuclear weapons effects facts is placed on the record in case the currently, increasingly vicious Cold War 2.0 escalates into some kind of limited "nuclear demonstration" by aggressors to try to end a conventional war by using coercive threats, (b) to ensure the lessons of tactical nuclear weapon design for deterring large scale provocations (like the invasions of Belgium in 1914 and Poland in 1939 which triggered world wars) are re-learned in contrast to Dulles "massive retaliation" (incredible deterrent) nonsense, and finally (c) to provide some push to Western governments to "get real" with our civil defense, to try to make credible our ageing "strategic nuclear deterrent". We have also provided a detailed analysis of recently declassified Russian nuclear warhead design data, shelter data, effects data, tactical nuclear weapons employment manuals, and some suggestions for improving Western thermonuclear warheads to improve deterrence.

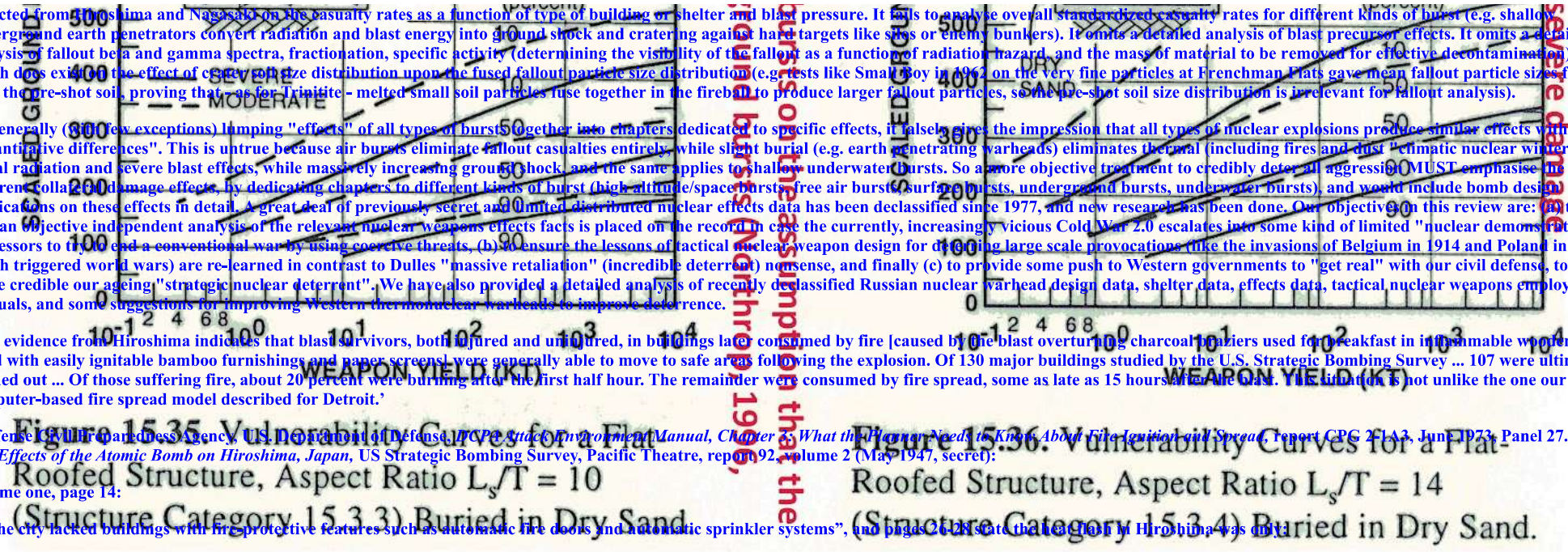


Figure 15.35. Vulnerability Curves for a Flat-Roofed Structure, Aspect Ratio $L_s/T = 10$ (Structure Category 15.3.3) Buried in Dry Sand.

Figure 15.36. Vulnerability Curves for a Flat-Roofed Structure, Aspect Ratio $L_s/T = 14$ (Structure Category 15.3.4) Buried in Dry Sand.

‘The evidence from Hiroshima indicates that blast survivors, both injured and uninjured, in buildings later consumed by fire [caused by the blast overturning charcoal braziers used for breakfast in inflammable wooden houses filled with easily ignitable bamboo furnishings and paper screens] were generally able to move to safe areas following the explosion. Of 130 major buildings studied by the U.S. Strategic Bombing Survey ... 107 were ultimately burned out ... Of those suffering fire, about 20 percent were burning after the first half hour. The remainder were consumed by fire spread, some as late as 15 hours after the blast. The situation is not unlike the one our computer-based fire spread model described for Detroit.’

- Defense Civil Preparedness Agency, US Department of Defense, *DCPA Attack Environment Manual, Chapter 3: What the Planner Needs to Know About Fire Ignition and Spread*, report CPG 2-1A3, June 1973, Panel 27.

The Effects of the Atomic Bomb on Hiroshima, Japan, **US Strategic Bombing Survey, Pacific Theatre, report 92, volume 2 (May 1947, secret):**

Volume one, page 14:

“... the city lacked buildings with fire-protective features such as automatic fire doors and automatic sprinkler systems”, and pages 26-28 state the heat flash in Hiroshima was only “...

capable of starting primary fires in exposed, easily combustible materials such as dark cloth, thin paper, or dry rotted wood exposed to direct radiation at distances usually within 4,000 feet of the point of detonation (AZ).”

Volume two examines the firestorm and the ignition of clothing by the thermal radiation flash in Hiroshima:

Page 24:

“Scores of persons throughout all sections of the city were questioned concerning the ignition of clothing by the flash from the bomb. ... Ten school boys were located during the study who had been in school yards about 6,200 feet east and 7,000 feet west, respectively, from AZ [air zero]. These boys had flash burns on the portions of their faces which had been directly exposed to rays of the bomb. The boys’ stories were consistent to the effect that their clothing, apparently of cotton materials, ‘smoked,’ but did not burst into flame. ... a boy’s coat ... started to smoulder from heat rays at 3,800 feet from AZ.” [Contrast this to the obfuscation and vagueness in Glasstone, *The Effects of Nuclear Weapons*!]

Page 88:

“Ignition of the City. ... Only directly exposed surfaces were flash burned. Measured from GZ, flash burns on wood poles were observed at 13,000 feet, granite was roughened or spalled by heat at 1,300 feet, and vitreous tiles on roofs were blistered at 4,000 feet. ... six persons who had been in reinforced-concrete buildings within 3,200 feet of air zero stated that black cotton blackout curtains were ignited by radiant heat ... dark clothing was scorched and, in some cases, reported to have burst into flame from flash heat [*although as the 1946 unclassified USSBS report admits, most immediately beat the flames out with their hands without sustaining injury, because the clothing was not drenched in gasoline, unlike peacetime gasoline tanker road accident victims*]

“... but a large proportion of over 1,000 persons questioned was in agreement that a great majority of the original fires was started by debris falling on kitchen charcoal fires, by industrial process fires, or by electric short circuits. Hundreds of fires were reported to have started in the centre of the city within 10 minutes after the explosion. Of the total number of buildings investigated [135 buildings are listed] 107 caught fire, and in 69 instances, the probable cause of initial ignition of the buildings or their contents was as follows: (1) 8 by direct radiated heat from the bomb (primary fire), (2) 8 by secondary sources, and (3) 53 by fire spread from exposed [wooden] buildings.”

There is now a relatively long introduction at the top of this blog, due to the present nuclear threat caused by disarmament and arms control propaganda, and the dire need to get the facts out past pro-Russian media influencers or loony mass media which has never cared about nuclear and radiation effects facts, so please scroll down to see blog posts. The text below in blue is hyperlinked (direct to reference source materials, rather than numbered and linked to reference at the end of the page) so you can right-click on it and open in a new tab to see the source. **This page is not about opinions, it provides censored out facts that debunk propaganda, but for those who require background "authority" nonsense on censored physics facts, see stuff here or here.** Regarding calling war-mongering, world war causing, terrorism-regime-supporting UK disarmers of the 20th century "thugs" instead of "kind language": I was put through the Christianity grinder as a kid so will quote Jesus (whom I'm instructed to follow), Matthew 23:33: "Ye serpents, ye generation of vipers, how can ye escape the damnation of Hell?" The fake "pacifist" thugs will respond with some kindly suggestion that this is "paranoid" and that "Jesus was rightfully no-platformed for his inappropriate language"! Yeah, you guys would say that, wouldn't ya. *Genuine pacifism requires credible deterrence! Decent people seem to be very confused about the facts of this. Jesus did not say "disarm to invite your annihilation by terrorists". You can't "forgive and forget" when the enemy is still on the warpath. They have to be stopped, either by deterrence, force, defense, or a combination of all these.*

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ARMAMENT RESEARCH ESTABLISHMENT

SYMPOSIUM
ON
THE PHYSICAL EFFECTS OF ATOMIC WEAPONS

PROGRAMME

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A SYMPOSIUM
ON
THE PHYSICAL EFFECTS OF ATOMIC WEAPONS

to be held at
The Royal Institution of Great Britain
21, Albemarle St., W.1.
on
September 27 & 28, 1949

Mr.E.Leader-Williams, B.Sc., A.M.Inst.C.E. Chief Scientific Adviser's Department, Home Office.

Because America kept the casualty rates in different kinds of buildings and shelters at Hiroshi and Nagasaki secret, already by 1949 the UK had used its own WWII data to determine this.

Edward Leader-Williams (co-inventor of Morrison indoor table shelter, with Lord Baker, WWII), Secret *Symposium on the Physical Effects of Atomic Weapons*, paper 5, *Civil Defence Studies. NOTE: the Morrison shelter was adapted in the 1982 Home Office "Domestic Nuclear Shelters - Technical Guidance" by adding a protected escape tunnel to avoid risk trapping.*

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CIVIL DEFENCE STUDIES

A CONTRIBUTION TO THE A.R.E. SYMPOSIUM

FIG. 1

Casualties in Morrison Shelters

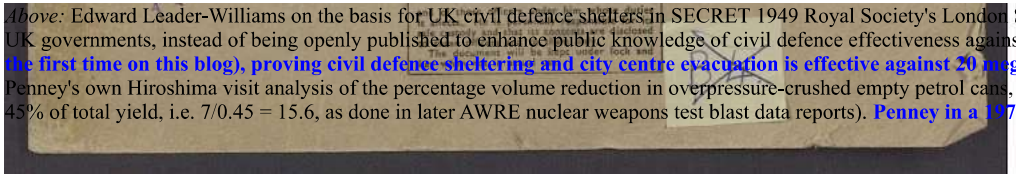
Leader-Williams in this Secret paper uses WWII survival data for various types of shelters, in conjunction with city sky "shadowing" protection against radiation, to determine survival of air shelters for protection against nuclear attack.

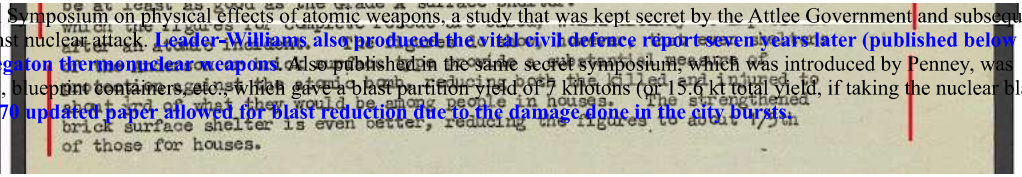
Category of house damage	Distance estimated by the British Mission to Japan at which this category of house damage would occur from a bomb of the Nagasaki type burst at a height of ⅜ mile	Corresponding distance from a burst at ⅓ mile	Data based on H.E. experience				
			Number of Morrison shelter occupants	Killed	Seriously injured	Lightly injured	Proportion of shelter occupant able to escape unaided
A. Totally destroyed	3000 ft.	2500 ft.	115	7%	10%	14%	40%
B. So badly damaged that demolition necessary	5280 ft.	3900 ft.	22	0	5%	5%	60%
C. Damaged and uninhabitable	7920 ft.	6300 ft.	6	0	0	0	100%

From these data it is possible to define the thickness of protective material, e.g. concrete, to give protection at any defined distance. For example, 2 ft. of concrete gives protection from death from radiation immediately under a bomb burst at the Japanese height. However, when a bomb bursts over a city, particularly if the burst is fairly low as is being assumed for the present study, the shielding of intervening buildings between a shelter and the bomb will help in reducing radiation casualties. In an attempt to assess the quantitative importance of this shielding, a very detailed study was made of a sample area in London. Shelters were assumed to be placed in all

protection from flash burn is provided by even comparatively light materials, curtains, etc., and in the conditions of this study where everyone is assumed to be in houses or shelters, no flash burn casualties have been allowed for.

The high proportion of these delayed deaths among Anderson shelter occupants is, of course, due to the fact that the Anderson shelter, as it stands, does not provide a balanced design against the atomic bomb; it is better against blast than it is against gamma radiation. However, it should be a comparatively simple matter to increase the gamma radiation protection by providing an increased thickness of earth cover, and with this provision the Anderson should





Above: Edward Leader-Williams on the basis for UK civil defence shelters in SECRET 1949 Royal Society's London Symposium on physical effects of atomic weapons, a study that was kept secret by the Attlee Government and subsequent UK governments, instead of being openly published to enhance public knowledge of civil defence effectiveness against nuclear attack. **Leader-Williams also produced the vital civil defence report seven years later (published below for the first time on this blog), proving civil defence sheltering and city centre evacuation is effective against 20 megaton thermonuclear weapons.** Also published in the same secret symposium, which was introduced by Penney, was Penney's own Hiroshima visit analysis of the percentage volume reduction in overpressure-crushed empty petrol cans, blueprint containers, etc., which gave a blast partition yield of 7 kilotons (or 15.6 kt total yield, if taking the nuclear blast as 45% of total yield, i.e. 7/0.45 = 15.6, as done in later AWRE nuclear weapons test blast data reports). **Penney in a 1970 updated paper allowed for blast reduction due to the damage done in the city bursts.**

ABOVE: The June 1957 edition of Glasstone's *Effects of Nuclear Weapons* was the first to include the effects of blast duration (which increases with the cube-root of weapon yield) on blast damage from nuclear weapons. This is very important for wind drag loading to drag-sensitive targets, but has less effect for diffraction-sensitive targets which respond to peak pressures, especially where the blast pressure rapidly equalizes around the structure (e.g. utility poles or buildings with large expanses of glass which shatters, allowing rapid pressure equalization). For example, Glasstone 1957, Fig. 6.41b (p253, using Fig. 3.94a on p109 to convert scaled distances to overpressures from a surface burst on open deserted terrain) shows that for yields of 1 kt, 20 kt (approximately the 16 kt Hiroshima and 21 kt Nagasaki yields), and 1 megaton, peak overpressures of 55, 23 and 15 psi, respectively, are required for collapse (severe damage) to modern multistory reinforced concrete buildings with light walls (Fig. 6.41a shows that about 5 psi will demolish a wood frame house - no longer in modern city centres - regardless of yield). Notice that this means that modern cities are extremely resistant to blast from ~1 kt neutron bombs, requiring more than twice the peak overpressure for collapse than was needed in Hiroshima and Nagasaki. Also notice that very large amounts of energy are absorbed from the blast in causing severe damage to modern reinforced concrete city buildings, causing rapid attenuation of free-field pressure so that ocean and desert test validated cube-root damage scaling laws break down for high yield bursts in modern cities (see latest blog post here for examples of calculations of this energy absorption in both oscillating a building in the elastic deflection engineering graph zone, and the much larger energy absorption in causing plastic zone distortion to reinforced concrete - basically the former typically absorbs about 1% of blast energy, whereas the latter takes up something like 10 times more energy, or 10%, a factor entirely dismissed by Glasstone and Dolan but analyzed by Penney). Above a megaton or so, the increasing blast duration has less and less effect on the peak overpressure required for severe damage, because for destruction a threshold blast loading exists, regardless of the blast duration. (A 1 mile/hour wind will not blow a wall down, regardless of how long it lasts. In other words, large impulses cease to be damage criteria if the blast pressure drops below a threshold needed for damage.) Glasstone 1957 Fig 6.41c on p255 shows that automobiles suffer severe damage 36 psi peak overpressure for 1 kt, 18 psi for 20 kt, and 12 psi for 1 megaton. These pressures for destruction of automobiles are similar to the severe damage data given for multistorey steel frame office buildings with light walls. *The key point here is that low-yield (around 1 kt) tactical nuclear weapons produce far less collateral damage to civilian infrastructure than high yield bursts, and even the effects of the latter are exaggerated severely for modern cities when using wooden house data in unobstructed terrain at ocean or desert terrain nuclear tests. Collateral damage is eliminated by exploiting the fact that higher pressures are needed for air blast damage at lower yields, and using earth penetrator warheads or air bursts to constrain air blast pressures to civilian infrastructure, ensuring that they are not collapsed (causing casualties in modern steel or concrete buildings).*

Note that the later (1962/4 and 1977) editions of *The Effects of Nuclear Weapons* replace the correct (curved line conversion) blast duration nomographs in the 1957 edition with simplistic W^n yield scaling (where n = 0.4 for drag sensitive targets), which is a simplification which fails to correctly model the fact that blast duration effects on overpressures are eliminated at very high yields because a minimum threshold blast pressure is needed to cause damage.

J. R. Oppenheimer (opposing Teller), February 1951: "It is clear that they can be used only as adjuncts in a military campaign which has some other components, and whose purpose is a military victory. They are not primarily weapons of totality or terror, but weapons used to give combat forces help they would otherwise lack. They are an integral part of military operations. Only when the atomic bomb is recognized as useful insofar as it is an integral part of military operations, will it really be of much help in the fighting of a war, rather than in warning all mankind to avert it." (Quotation: Samuel Cohen, Shame, 2nd ed., 2005, page 99.)

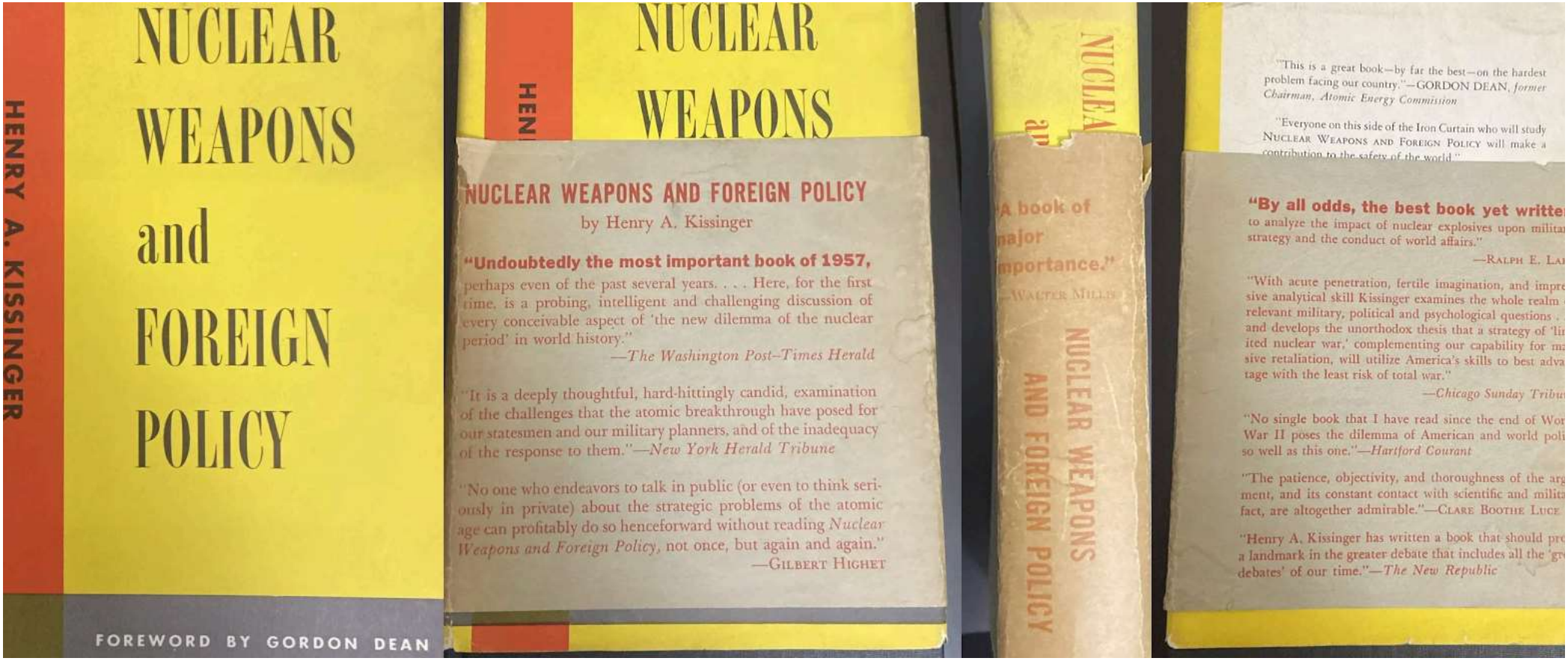
How low yield nuclear weapons can eliminate collateral damage

Glasstone, Effects of Nuclear Weapons 1957:

Peak overpressure in psi for severe damage (50% collapse probability / Type A damage), allowing for blast duration effect data: Fig 6.41b p253, Fig 6.41c p255, using surface burst overpressure conversion curve in Fig 3.94a p109

Structure	1 kt	20 kt	1 Mt
Steel truss bridge (blast normal to axis) 150-250 ft span	70	35	18
" " 250-550 ft span	55	23	15
Multistory concrete frame city building, light walls	55	23	15
Multistory steel frame city building, light walls	35	16	12
Diesel loco, side-on	53	30	16
Railroad rolling stock	16	8.3	6.1
Automobiles	36	18	12
Forests (175 trees/acre) and 200-500 ft radio/TV transmitting towers	9	5	4

Peak water pressure to sink ships (Fig. 6.41c and 5.52) based on Baker shot **4000** **2500** **1500**



'The Hungarian revolution of October and November 1956 demonstrated the difficulty faced even by a vastly superior army in attempting to dominate hostile territory. The [Soviet Union] Red Army finally had to concentrate twenty-two divisions in order to crush a practically unarmed population. ... With proper tactics, nuclear war need not be as destructive as it appears when we think of [World War II nuclear city bombing like Hiroshima]. The high casualty estimates for nuclear war are based on the assumption that the most suitable targets are those of conventional warfare: cities to interdict communications ... With cities no longer serving as key elements in the communications system of the military forces, the risks of initiating city bombing may outweigh the gains which can be achieved. ...

'The elimination of area targets will place an upper limit on the size of weapons it will be profitable to use. Since fall-out becomes a serious problem [i.e. fallout contaminated areas which are so large that thousands of people would need to evacuate or shelter indoors for up to two weeks] only in the range of explosive power of 500 kilotons and above, it could be proposed that no weapon larger than 500 kilotons will be employed unless the enemy uses it first. Concurrently, the United States could take advantage of a new development which significantly reduces fall-out by eliminating the last stage of the fission-fusion-fission process.'

- Dr Henry Kissinger, Nuclear Weapons and Foreign Policy, Harper, New York, 1957, pp. 180-3, 228-9.

Note that sometimes the "nuclear taboo" issue is raised against this analysis by Kissenger: if anti-nuclear lying propaganda on weapons effects makes it apparently taboo in the Western pro-Russian disarmament lobbies to escalate from conventional to tactical nuclear weapons to end war as on 6 and 9 August 1945, then this "nuclear taboo" can be relied upon to guarantee peace for our time. However, this was not only disproved by Hiroshima and Nagasaki, but by the Russian tactical nuclear weapons reliance today, the Russian civil defense shelter system detailed on this blog which showed they believed a nuclear war survivable based on the results of their own nuclear tests, and the use of Russian nuclear weapons years after Kissinger's analysis was published and criticised, for example their 50 megaton test in 1961 and their supply of IRBM's capable of reaching East Coast mainland USA targets to the fanatical Cuban dictatorship in 1962. So

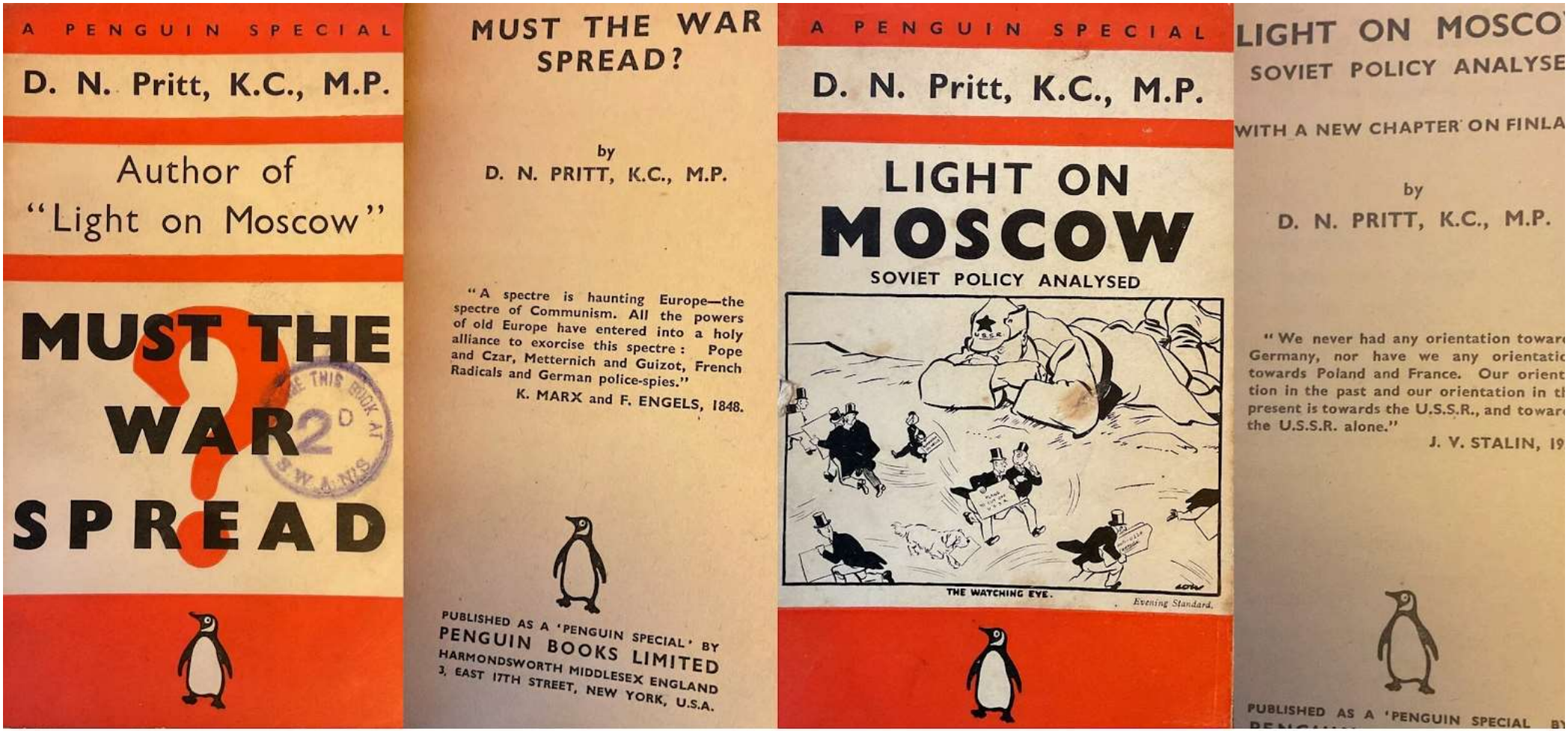
much for the "nuclear taboo" as being any more reliable than Chamberlain's "peace for our time" document, co-signed by Hitler on 30 September 1938! We furthermore saw how Russia respected President Obama's "red line" for the "chemical weapons taboo": Russia didn't give a toss about Western disarmament thugs prattle about what they think is a "taboo", Russia used chlorine and sarin in Syria to keep Assad the dictator and they used Novichok to attack and kill in the UK in 2018, with only diplomatic expulsions in response. "Taboos" are no more valid to restrain madmen than peace treaties, disarmament agreements, Western CND books attacking civil defense or claiming that nuclear war is the new 1930s gas war bogyman, or "secret" stamps on scientific facts. In a word, they're crazy superstitions.)

(Quoted in 2006 on this blog **here**.

All of this data should have been published to inform public debate on the basis for credible nuclear deterrence of war and civil defense, PREVENTING MILLIONS OF DEATHS SINCE WWII, instead of DELIBERATELY allowing enemy anti-nuclear and anti-civil defence lying propaganda from Russian supporting evil fascists to fill the public data vacuum, killing millions by allowing civil defence and war deterrence to be dismissed by ignorant "politicians" in the West, so that wars triggered by invasions with mass civilian casualties continue today for no purpose other than to promote terrorist agendas of hate and evil arrogance and lying for war, falsely labelled "arms control and disarmament for peace":

"Controlling escalation is really an exercise in deterrence, which means providing effective disincentives to unwanted enemy actions. Contrary to widely endorsed opinion, the use or threat of nuclear weapons in tactical operations seems at least as likely to check [*as Hiroshima and Nagasaki*] as to promote the expansion of hostilities [*providing we're not in a situation of Russian biased arms control and disarmament whereby we've no tactical weapons while the enemy has over 2000 neutron bombs thanks to "peace" propaganda from Russian thugs*]." - Bernard Brodie, pvi of *Escalation and the nuclear option*, RAND Corp memo RM-5444-PR, June 1965.

ABOVE: Why didn't Britain declare war on Russia when it jointly invaded Poland with the Nazis, or even later when Russia invaded Finland single-handed? Answer: Comintern had stuffed the British mass media, British universities, and even the Labour Party with Russian stooges! Barrister Denis Pritt, Labour MP, simply blamed the British government for not cosying up to Communist dictatorial Russia (in the same way Chamberlain had cosied up to Adolf Hitler's Nazis)! Pritt in 1936 went to watch the "Trial of the Sixteen" in Moscow, a show trial purge of Stalin's criticis that made a mockery of the law, but be defended Stalinism in his tract, "The Zinoviev Trial". He was only finally kicked out of the Labour Party after he defended Russia's invasion of Finland in popular Penguin Book Specials. But he wasn't alone. The communists of the British media used the same tactics as the Nazis to undermine or destroy critics, so they managed to churn out one-sided propaganda nearly as bad as the media saturation with anti-nuclear, anti-CO2 crap today.



Russian apologist and leading Labour Party Communist barrister and MP, Denis Pritt, QC, defended the join Russian-Nazi invasion of Poland in 1939 as due to Britain's failure to align itself with Stalin's dictatorship!

Pritt was finally expelled from the Labour Party in March 1940 for supporting Russia's invasion of Finland!





https://www.mk.ru/politics/2022/08/17/yadernye-snaryady-dlya-artillerii-vpervye-pokazali-na-forume-armiya2022.html
"... in the Patriot Park near Moscow, small-sized nuclear weapons were presented to the general public for the first time. Artillery shells are presented at the stand of Rosatom, which is responsible for the country's nuclear complex." 2.5 kt shell RD4-01 for the D-20 howitzer with caliber of 152 mm, the most common calibre in Russian army. The first nuclear artillery charge of 203 mm is the 2 kt shell RD5-01, fired by 2S7M Malka and SPG 2S7 "Pion" with 45 km range. PHOTOS BY PHILIP KOBELEV



ABOVE: Russia has recently switched its mai civil defense and military preparedness for nuclear war from Cold War era megaton yields down to modern era 100 kiloton MIRV/tactica

https://bloknot.ru/glavnaya/takticheskaya-yadernaya-vojna-kuda-chem-i-kogda-udarit-rossiya-i-kakim-budet-otvet-ssha-990862.html : "At the Army-2022 forum, Rosatom presented low-power nuclear artillery shells of 152 and 203 mm calib The smallest projectile with a nuclear warhead RD4-1 for 152 mm caliber artillery. has a capacity of 2.5 kilotons of TNT, and the largest RD5-1 of 203 mm caliber is only 2 kilotons. The 152 mm caliber is the most common in the Russian army. This is exactly the caliber of the 2A65 Msta-B howitzers. It is designed to destroy artillery batteries and destroy defensive structures. The Giatsint-S guns have the same caliber."







"... the Kh-59M Ovod-M universal high-precisio missile ... can be used by front-line bombers S and Su-24M, as well as multi-role fighters suc Su-30 and Su-35S. A [100 kt] nuclear warhead weighing about 150 kg was created for this ...



Russian RN-32 - aerial tactical-strategic thermonuclear bomb for fighter-bomber delivery
Developer: FSUE "RFNC-VNIITF" (Snezhinsk, Chelyabinsk region)
Chief designers: L. F. Klopov & O. N. Tikhane, 1970-1980
Source: Museum of the Federal State Unitary Enterprise "RFNC-VNIITF", Snezhinsk, Russia

Russian project 49 dual-primary thermonuclear weaponeer Dr Yuri Trutnev has an officially "proatom.ru"-published technical history of the design of the Russian nuclear weapons (which differ from UK-USA designs fundamentally) **here (extracted from Russian "Atomic Strategy" No. 18, August 2005)**: "the problem of ensuring spherically symmetric compression of the secondary module was radically solved, since the time of “symmetrization” of the energy around the secondary module was much less than the time of compression of this module. ... The first two-stage thermonuclear charge, designated RDS-37, was developed in 1955 and successfully tested on November 22, 1955. The energy release of the charge in the experiment was 1.6 Mt, and since for safety reasons at the Semipalatinsk test site the charge was tested at partial power, the predicted full-scale energy release of the charge was ~ 3 Mt. The energy release amplification factor in RDS-37 was about two orders of magnitude, the charge did not use tritium, the thermonuclear fuel was lithium deuteride, and the main fissile material was U-238. ... Particular attention should be paid to the works of 1958. This year, a new type of thermonuclear charge, “product 49,” was tested [the double-primary H-bomb], which was the next step in the formation of a standard for thermonuclear charges (its development was completed in 1957, but testing on the SIP did not take place). The ideologists of this project and the developers of the physical charge circuit were Yu. N. Babaev and I. The peculiarity of the new charge was that, using the basic principles of the RDS-37, it was possible to: • significantly



reduce overall parameters due to a new bold solution to the problem of transfer of X-ray radiation, which determines implosion; • simplify the layered structure of the secondary module, which turned out to be an extremely important practical decision. According to the conditions of adaptation to specific carriers, **“product 49” was developed in a smaller overall weight category compared to the RDS-37 charge, but its specific volumetric energy release turned out to be 2.4 times greater.**

"The physical design of the charge turned out to be extremely successful; the charge was transferred to service and subsequently underwent modernization associated with the replacement of primary energy sources. In 1958, together with Yu. N. Babaev, we managed to develop 4 thermonuclear charges, which were tested on the field in 7 full-scale tests, and all of them were successful. This work was practically implemented within 8 months of 1958. All of these charges used a new

circuit, first introduced in Product 49. Their energy release ranged from 0.3 to 2.8 Mt. In addition, in 1958, under my leadership M. V. Fedulov also developed the lightest thermonuclear charge at that time according to the “product 49” design, which was also successfully tested. Work on the miniaturization of thermonuclear weapons was new at that time, and it was met with a certain misunderstanding and resistance. ... One of the well-known pages in the history of work on thermonuclear weapons of the USSR is the creation of a superbomb - the most powerful thermonuclear charge. I will dwell on some points of this development. ... Among the features of this charge, it should be noted that the large volume of the charge (due to its high energy release) required significant amounts of X-ray energy to carry out implosion. The developed nuclear charges did not satisfy this condition, and therefore, a previously developed two-stage thermonuclear charge with a relatively low energy release was used as the primary source of the “super-powerful charge”. This charge was developed by me and Yu. N. Babaev. ... In the next project (a return to the untested 1958 system) that I supervised, every effort was made to ensure near-perfect implosion symmetry. This brilliant work led to success, and in 1962, the problem of implementing thermonuclear ignition was solved in a special device. In other full-scale tests that followed, this success was consolidated, and as a result, thermonuclear ignition provided the calculated combustion of the secondary module with an energy release of 1 Mt. My co-authors in this development were V.B. Adamsky, Yu.N. Babaev, V.G. Zagrafov and V.N. Mokhov. ... This principle has found a variety of applications in the creation of fundamentally new types of thermonuclear charges, from special devices for the use of nuclear explosions for peaceful purposes to significant military applications." (Note there is a 2017 filmed interview of Trutnev - in Russian - linked **here**.)

В 1960-х годах в СССР развернулись работы по созданию тяжелой межконтинентальной баллистической ракеты Р-36, которая впоследствии стала основой нашего ракетно-ядерного щита. Для оснащения этой ракеты в 1962 г. в РФЯЦ-ВНИИЭФ был создан и успешно испытан уникальный термоядерный заряд сверхбольшой мощности. В его теоретическую разработку наибольший вклад внес Б.Н. Козлов, среди конструкторов нужно отметить В.А. Белугина и И.Г. Иванова. В 1966 г. ВНИИЭФ провел успешное испытание заряда второго поколения, в котором повышение удельной мощности почти вдвое было достигнуто за счет увеличения вклада реакций деления в термоядерном модуле. В дальнейшем эти результаты были использованы при создании новых изделий третьего поколения.

За успешное решение проблемы безопасности эксплуатации ядерных зарядов второго поколения были удостоены Государственных премий СССР 11 сотрудников ВНИИЭФ.

In the 1960s, the USSR began work on the creation of a heavy intercontinental ballistic missile R-36, which subsequently became the basis of our nuclear missile shield. To equip this rocket, in 1962, a unique ultra-high-power thermonuclear charge was created and successfully tested at the RFNC-VNIIEF. B.N. Kozlov made the greatest contribution to its theoretical development, among the designers V.A. Belugin and I.G. Ivanov should be noted. In 1966, VNIIEF conducted a successful test of the second generation charge, in which an increase in specific power was almost doubled. This is due t an increase in the contribution of fission reactions in the thermonuclear cycle. In the future, these results were used to create new products of the third generation.

11 VNIIEF employees were awarded State Prizes of the USSR for the successful solution of the problem of the safety of operation of second-generation nuclear charges.

Translation from A. A. Greshilov et al., Nuclear Shield, 2008, p171 (section 2.7: Second Generation Thermonuclear Charge

This is the basis for both the **Russian isentropic-compressed pure fusion secondary (99.85% clean) neutron bomb** and related progress with strategic warheads:

“In 1966, VNIIEF conducted a successful test of the second generation charge, in which an almost doubling of the power density was achieved by increasing the contribution of fission reactions in the thermonuclear module. These results were subsequently used to create new third-generation products.” - A. A. Greshilov, N. D. Egupov and A. M. Matushchenko, *Nuclear shield* (official Russian nuclear weapons history), 2008, p171 (linked here: https://elib.biblioatom.ru/text/greshilov_yaderny-schit_2008/p171/). Note that first double-primary Project 49 Russian test on 23 February 1958 was rapidly weaponised as the 1364 kg 8F12/8F12N warhead for the 8K63 missile in 1959, according to **http://militaryrussia.ru/blog/index-0-5.html** which also gives a table of yields and masses of other Russian warheads: the 2.3 megaton warhead 8K15 for the 8K65 missile had a mass of 1546 kg; the 5 megaton 8F116 warhead for the 8K64 and 8K65 missiles had a mass of 2175 kg; the 6 megaton 8F117 for the 8K64 and other missiles had a mass of 2200 kg, etc. **The diagram below shows a cut-away through the shells in the isentropically-compressed megaton secondary stage of the first Russian weapon without a central fission neutron-producing sparkplug (1.1 megaton Russian test number 218 at Novaya Zemlya on 24 December 1962, an air drop detonating at 1320 m altitude). This diagram was declassified in the official Russian "History of the domestic nuclear project - Report by the scientific director of RFNC-VNIIEF, Academician of the Russian Academy of Sciences R.I. Ilkaeva at the General Meeting, Department of Physical Sciences of the Russian Academy of Sciences December 17, 2012, RAS",** after John H. Nuckolls' summary of the similar, 99.9% clean 10 megaton Ripple-2, tested 30 October 1962 as detailed in posts below (the detailed interior design analysis of the Russian megaton nuclear warhead for the R13 - *which is on display in a Russian nuclear warhead design museum* - is from the Russian sites **here** and **here**).

К 1957 г. на предприятиях Минсредмаша было наработано достаточно большое количество урана-235, поэтому стало возможным создание атомного заряда имплозивного типа с применением в качестве ядерного горючего только урана-235. Этот заряд был успешно испытан в сентябре 1957 г., после чего произошла передача его на вооружение в составе боевых частей.

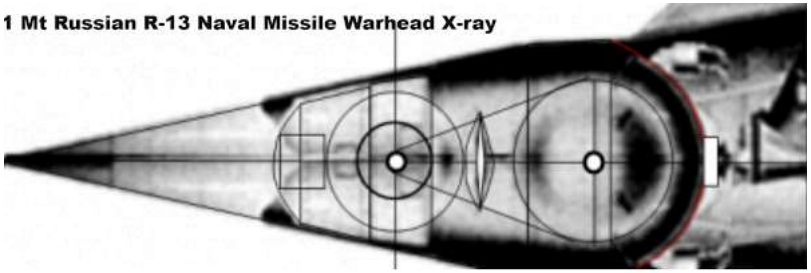
В 1953–1954 гг. началась разработка атомного заряда для торпеды Т-5, имевшей стандартный калибр. Требовалось существенно по сравнению с предыдущими разработками РДС-4 сократить габариты заряда. Разработчикам в КБ-11 предстояло решить непростую задачу. По результатам трех полигонных испытаний была выбрана конструкция заряда для торпеды. Этот заряд мощностью 3,5 кт 21 сентября 1955 г. был испытан в составе боевого зарядного отделения (БЗО) торпеды Т-5 в подводном положении в районе архипелага Новая Земля.

By 1957, a sufficiently large amount of uranium-235 had been accumulated a the enterprises of the Ministry of Agriculture, so it became possible to build implosive type atomic charge using only uranium-235 as nuclear fuel. This charge was successfully tested in September 1957, after which it was transferred to military equipment as part of combat units.

In 1953-1954, the development of an atomic charge for a torpedo began T-5, which had a standard caliber. It was necessary to significantly reduce the dimensions compared to previous RDS-4 developments the charge. The developers at KB-11 had to solve a difficult task. Based on the results of thre field tests, the design of the charge for the torpedo was selected. This 3.5 kt charge is on September 21st In 1955, it was tested as part of the combat charging compartment (BZO) of the T-5 torpedo in an underwater position in the area of the Novaya Zemlya archipelago.

- Translation from: A. A. Greshilov, Nuclear Shield, 2008, p179 (section 2.9: Chronology of the improvement of nuclear weapons).

1 Mt Russian R-13 Naval Missile Warhead X-ray

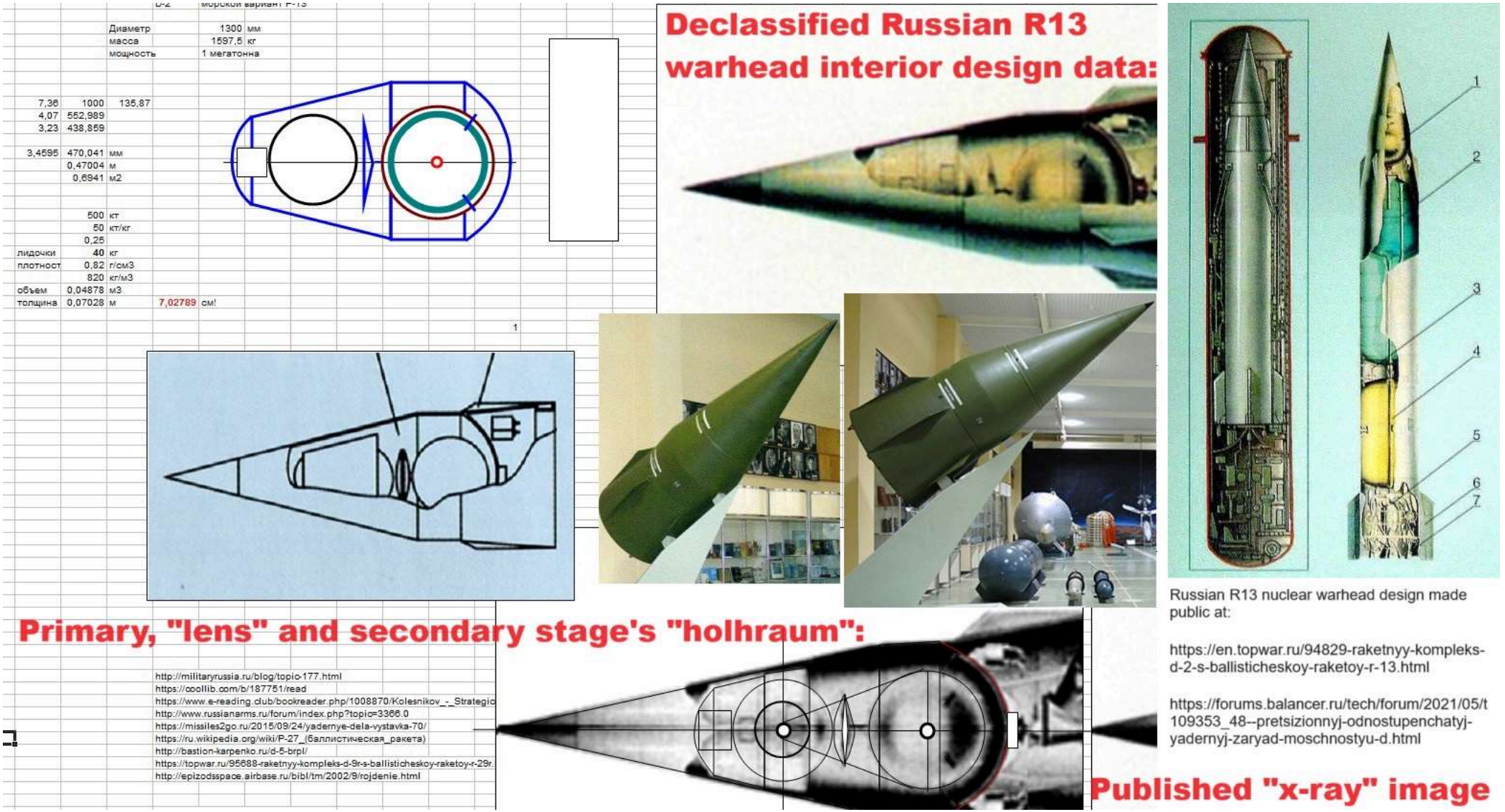




http://www.gpad.ac.ru/info/contributions/Ilkaev.pdf

1. Solid thermonuclear fuel – lithium deuteride
2. Gold shell
3. Inert shell
4. Low Z material
5. Shell made of large Z material
6. Medium Z Layer
7. Layer of low-Z material

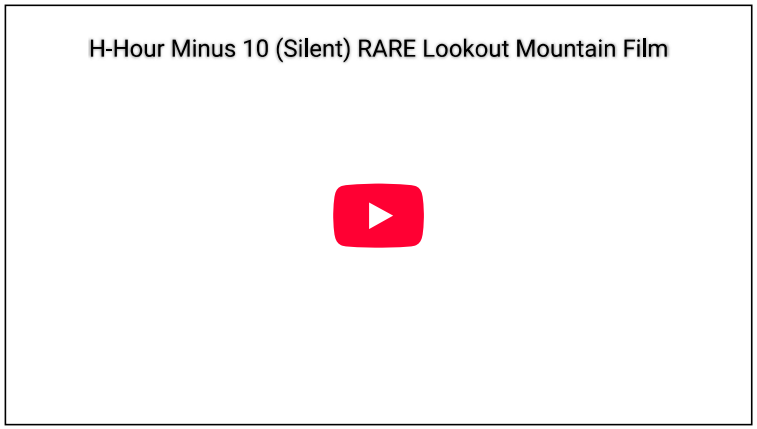
"... it is an important defect of 'arms control' agreements that the punishment or correction of even outright violation is not done automatically ... [in 1934 Ramsay] MacDonald and his supporters urged one of the least aggressive nations in Europe to disarm itself to a level equal with their potential attackers ... *Probably as much as any other single group I think that these men of good will can be charged with causing World War II. [Italics are Kahn's own.]* ... In March 1934, Stanley Baldwin, in answer to a statement by Winston Churchill to the effect that Germany was rearming and growing stronger than Great Britain, made his famous statement: 'If all our efforts at agreement fail [*why 'all' and how do you define 'failure' until after the enemy secretly breaks the agreement and enemy starts a war, when it is too late?*] ... in air strength and air power this country shall no longer be inferior to any country within striking distance of its shores'. In spite of this pledge, by 1935 the Germans had achieved parity or even air superiority and their rate of expansion was much larger than that of the British; thus the disparity grew with the years. ... On March 16, 1935, Hitler decreed conscription ... In April,

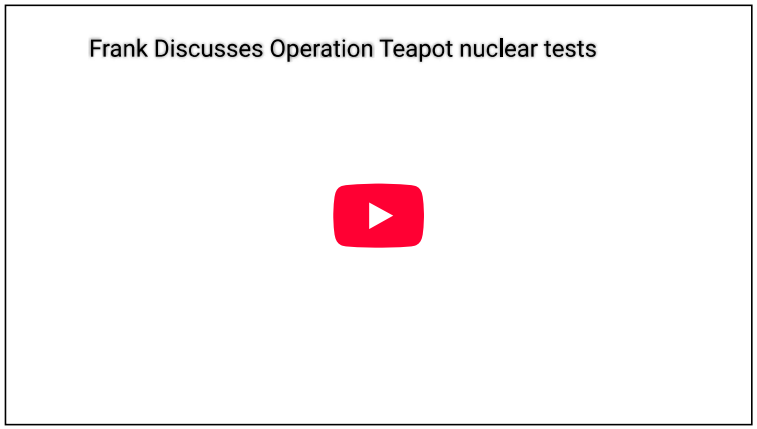


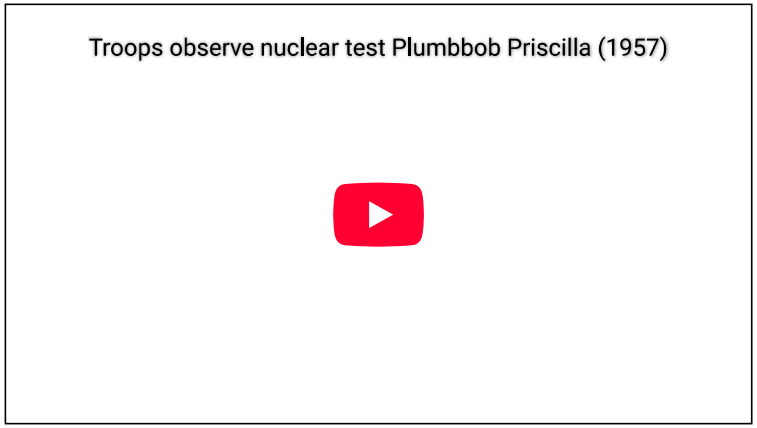
the League [of Nations, the old version of the UN] ... unanimously voted that treaties should not be broken by unilateral action. ... **At no time did Hitler threaten to initiate war against France and England. He simply threatened to 'retaliate' if they attacked him. ... The technique he used is such an obvious prototype for a future aggressor armed with H-bombs** that it is of extreme value to all who are concerned with the problem of maintaining a peaceful and secure world to go over the story in some detail." - Kahn, On Thermonuclear War, pp. 390-392, 403. (Kahn then gives a long discussion of the "you have the choice"-way Hitler blackmailed President Hacha into signing over his country to the Nazis in March 1939, despite the worthless Munich agreement of 1938, using first-hand testimony from Hitler's translator at the 14 March 1939 Hitler-Hacha meeting, Paul Schmidt: "There were, said Hitler, 'two possibilities. The first was that the invasion of the German troops might develop into a battle. The resistance would then be broken down by force of arms with all available means. The other was that the entry of the German troops should take place in a peaceable manner ...'." Now the issue is this: Hitler used "peace" as an option to get what he wanted without violence. But populist propaganda claims Hitler was "violent". Nope: Hitler preferred to "peacefully" invade, "peacefully" gas opponents in gas chambers with musicians playing classical music at the deportation camp railway stations to prevent violence starting, etc. Reagan made the point in his March 1983 "evil empire" speech that the most evil thugs of all that instigate genocide hide behind the cloak of spurious pacifism!)

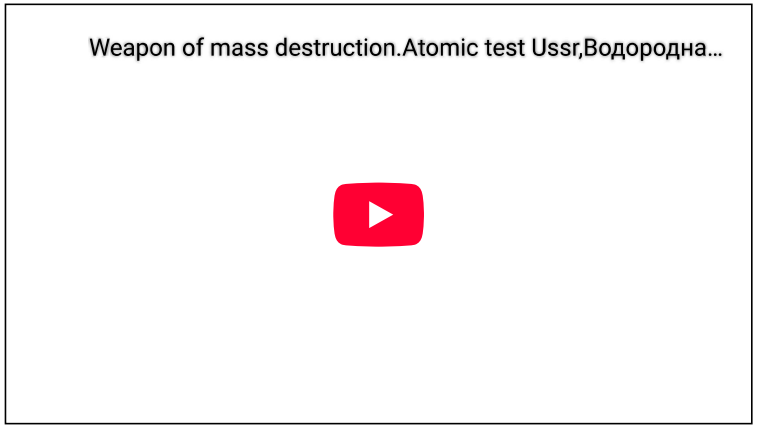
https://hbr.org/1995/05/why-the-news-is-not-the-truth/ (Peter Vanderwicken in the *Harvard Business Review Magazine,* May-June 1995): "The news media and the government are entwined in a vicious circle of mutual manipulation, mythmaking, and self-interest. Journalists need crises to dramatize news, and government officials need to appear to be responding to crises. Too often, the crises are not really crises but joint fabrications. The two institutions have become so

ensnared in a symbiotic web of lies that the news media are unable to tell the public what is true and the government is unable to govern effectively. That is the thesis advanced by Paul H. Weaver, a former political scientist (at Harvard University), journalist (at Fortune magazine), and corporate communications executive (at Ford Motor Company), in his provocative analysis entitled *News and the Culture of Lying: How Journalism Really Works* ... The news media and the government have created a charade that serves their own interests but misleads the public. Officials oblige the media's need for drama by fabricating crises and stage-managing their responses, thereby enhancing their own prestige and power. Journalists dutifully report those fabrications. Both parties know the articles are self-aggrandizing manipulations and fail to inform the public about the more complex but boring issues of government policy and activity. What has emerged, Weaver argues, is a culture of lying. ... The architect of the transformation was not a political leader or a constitutional convention but Joseph Pulitzer, who in 1883 bought the sleepy New York World and in 20 years made it the country's largest newspaper. Pulitzer accomplished that by bringing drama to news—by turning news articles into stories ... His journalism took events out of their dry, institutional contexts and made them emotional rather than rational, immediate rather than considered, and sensational rather than informative. The press became a stage on which the actions of government were a series of dramas. ... The press swarmed on the story, which had all the necessary dramatic elements: a foot-dragging bureaucracy, a study finding that the country's favorite fruit was poisoning its children, and movie stars opposing the pesticide. Sales of apples collapsed. Within months, Alar's manufacturer withdrew it from the market, although both the EPA and the Food and Drug Administration stated that they believed Alar levels on apples were safe. The outcry simply overwhelmed scientific evidence. That happens all too often, Cynthia Crossen argues in her book Tainted Truth: The Manipulation of Fact in America. ... Crossen writes, "more and more of the information we use to buy, elect, advise, acquit and heal has been created not to expand our knowledge but to sell a product or advance a cause." "Most members of the media are ill-equipped to judge a technical study," Crossen correctly points out. "Even if the science hasn't been explained or published in a U.S. journal, the media may jump on a study if it promises entertainment for readers or viewers. And if the media jump, that is good enough for many Americans." ... A press driven by drama and crises creates a government driven by response to crises. Such an "emergency government can't govern," Weaver concludes. "Not only does public support for emergency policies evaporate the minute they're in place and the crisis passes, but officials acting in the emergency mode can't make meaningful public policies. According to the classic textbook definition, government is the authoritative allocation of values, and emergency government doesn't authoritatively allocate values." (Note that Richard Rhodes' Pulitzer prize winning books such as *The making of the atomic bomb* which uncritically quote Hiroshima firestorm lies and survivors nonsense about people running around without feet, play to this kind of emotional fantasy mythology of nuclear deterrence obfuscation so loved by the mass media.)

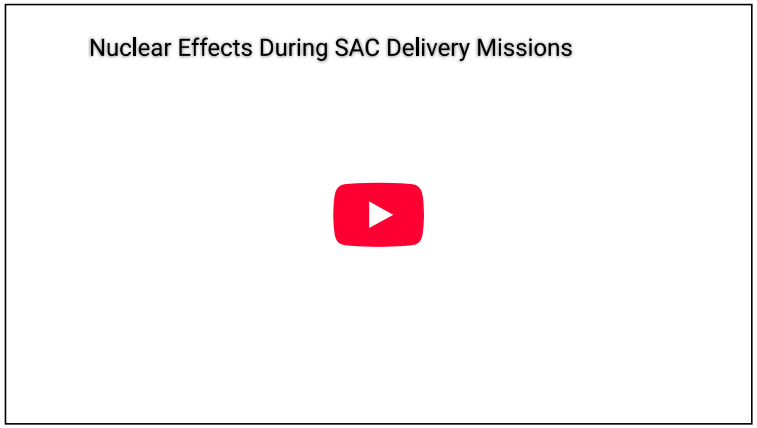








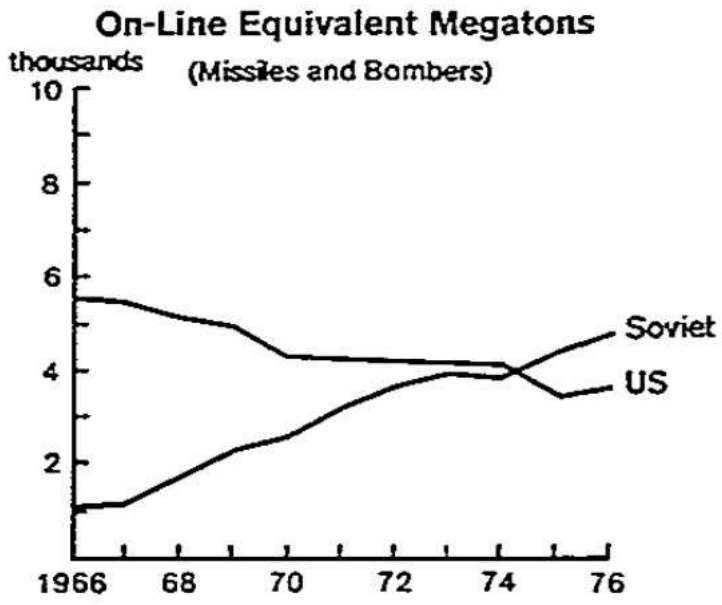




"... Freedom is the right to question, and change the established way of doing things. It is the continuing revolution ... It is the understanding that allows us to recognize shortcomings and seek solutions. It is the right to put forth an idea ...." – Ronald Reagan, Moscow State University, May 31, 1988 (quoted **at our physics site, www.quantumfieldtheory.org**). *Text in blue on this blog is hyperlinked directly to reference material (so can be opened in another tab by right-clicking on it):*

ABOVE: "missile gap" propaganda debunked by secret 1970s data; Kennedy relied on US nuclear superiority. Using a flawed analysis of nuclear weapons effects on Hiroshima - based on lying unclassified propaganda reports and ignorant dismissals of civil defense shelters in Russia (again based on Hiroshima propaganda by groves in 1945) - America allowed Russian nuclear superiority in the 1970s. Increasingly, the nuclear deterrent was used by Russia to stop the West from "interfering" with its aggressive invasions and wars, precisely Hitler's 1930s strategy with gas bombing knockout-blow threats used to engineer appeasement. BELOW: H-bomb effects and design secrecy led to tragic mass media delusions, such as the 18 February 1950 Picture Post claim that the H-bomb can devastate Australia (inspiring the Shute novel and movie "On the Beach" and also other radiation scams like "Dr Strangelove" to be used by Russia to stir up anti Western disarmament movement to help Russia win WWIII). Dad was a Civil Defense Corps Instructor in the UK when this was done (the civil defense effectiveness and weapon effects facts on shelters at UK and USA nuclear tests were kept secret and not used to debunk lying political appeasement propaganda tricks in the mass media by sensationalist "journalists" and Russian "sputniks"):





* Excludes ICBM silo launchers under construction or conversion and SLBM launchers on SSBNs undergoing sea trials, conversion, or shipyard overhaul. Missile payloads composed of MRVs (which are not independently targetable) are counted as one RV.

~~SECRET~~

17

~~S 869121-76/1~~ ~~Top Secret~~

MEMORANDUM FOR: Recipients of National Intelligence Estimate 11-3/8-76, "Soviet Forces for Intercontinental Conflict Through the Mid-1980s"

FROM George Bush

Fred Kaplan, plus most of the infiltrated mass media, continued ranting about premature 1957 warnings of a missile gap, long after the missile gap became real...

18 February 1950 Picture Post H-bomb



"Well, gentlemen, we are agreed, then, that the trivial risk of dissolving the solar system must be subordinated to the higher interests of scientific truth and our researches will continue?"

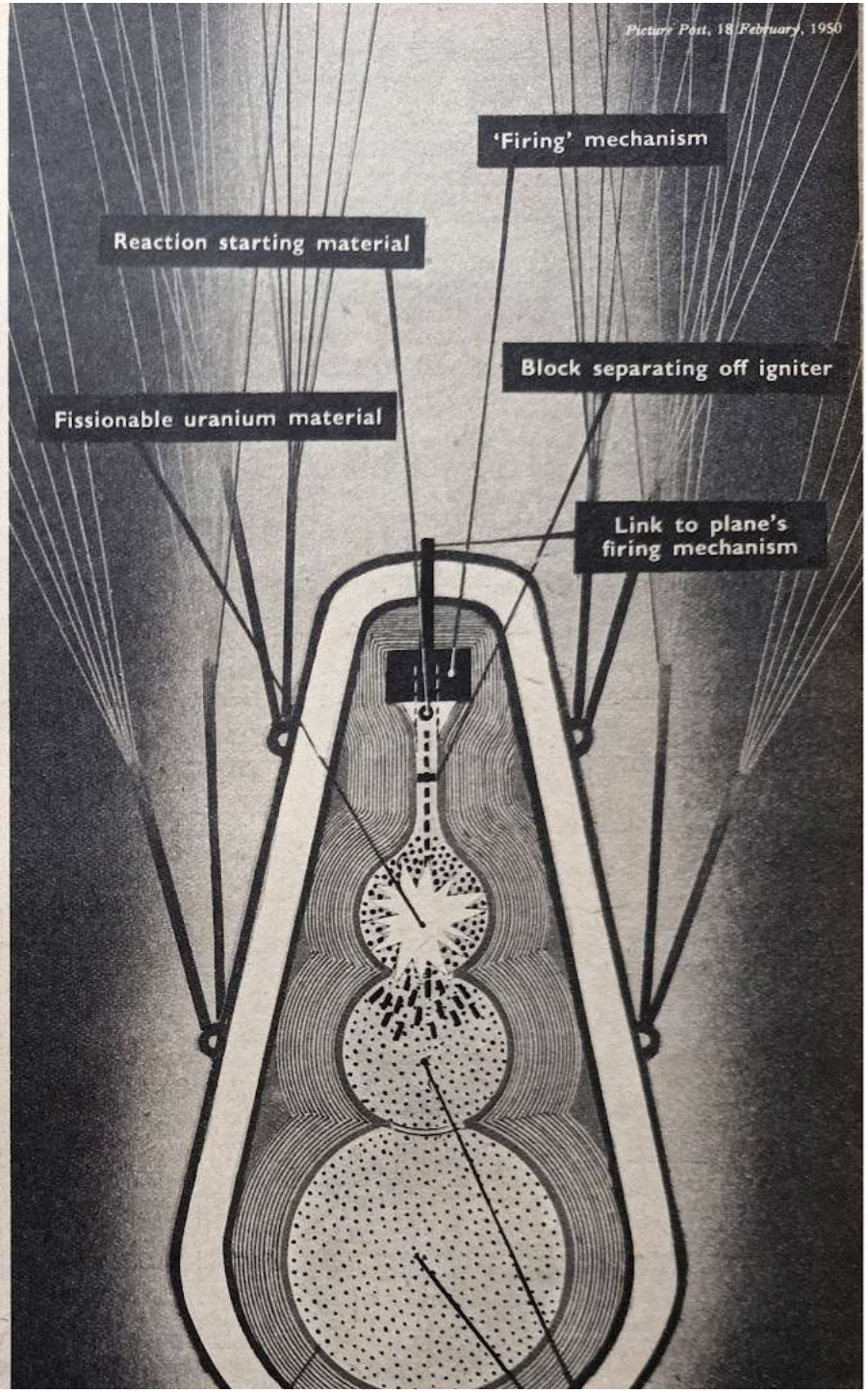
A cartoon by Osbert Lancaster from the Daily Express.

CAN MAN SURVIVE

the Hydrogen Bomb?

ON Friday, January 13 of this year, the London *Times* printed a down-the-page report from their Washington correspondent under the heading 'A Hydrogen Atomic Bomb.' This was the first news to reach the people living in Britain that it was possible to create a hydrogen bomb which could be made a thousand times more powerful than the older type of uranium atomic bombs which were used at Hiroshima and Nagasaki. The report laconically mentioned that "scientists did not expect it to set the atmosphere on fire."

But calculations about such a 'super bomb' had been published in



Vienna by the Austrian physicist, Hans Thirring, as long ago as 1946, in his book, 'The History of the Atom Bomb.' In a later book on 'Atom Warfare and World Politics,' he stressed another danger which faces Man : the possibility of warfare conducted with lethal radio-active dusts—by-products of all atomic piles.

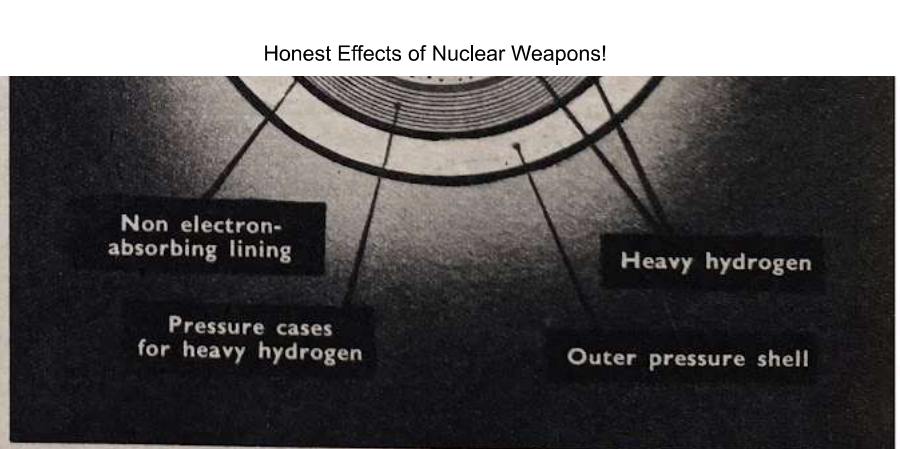
What is the truth of the matter? We now know that the manufacture of a hydrogen super bomb is possible. Truman has given the order for work to go ahead on it. There are many difficulties, but none of them is insuperable.

Early in the 1930's, Joliot Curie and his wife Irene, daughter of M. and Mme. Curie, who discovered radium, found that when beryllium was bombarded with an alpha particle (the nucleus, centre-piece, of an atom of the gas helium), a secondary radiation was set up in the beryllium. This secondary radiation knocked out particles from paraffin wax and other substances which contained hydrogen. This was the start of the story.

The British scientists Cockroft and Walton demonstrated that, using a beam of protons (particles of atoms) of only 120,000 volts energy, they could disintegrate the lithium atom nucleus to produce two nuclei of helium, and Walton and Dee confirmed this in 1932. It was on these experiments that Thirring based his calculations for the much-publicised calculations for the lithium hydride bomb. The possibility of the hydrogen to helium change was soon demonstrated, and Max Born discussed it in his book, 'The Restless Universe,' published in 1935.

The quibblings of scientists who state that the hydrogen super bomb is impossible are on a level with those about the uranium bomb being 'impossible.' It is true that there is a great difference between laboratory

Continued overleaf



How the H-Bomb Works

This diagram has been drawn under the supervision of atomic scientists. They believe this is how the H-Bomb will work. A large uranium bomb could only ignite a small quantity of heavy hydrogen. In a larger quantity the enormous temperatures and pressures necessary to start off the hydrogen-to-helium change would be dissipated too quickly. To overcome this it must go off in stages separated by a millionth part of a second. The uranium bomb sets off the reaction in a small mass of heavy hydrogen. This in turn breaks through the weakest part of its shell to ignite the larger quantity needed to make the super bomb. Walls of each part are spherical to resist the great pressure for the split second the explosive chain takes for its course.

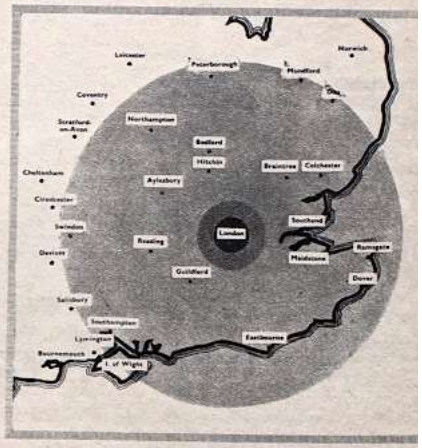


THIS IS WHAT WOULD HAPPEN IF A HYDROGEN BOMB WERE DROPPED ON THE BRITISH HOUSES OF PARLIAMENT

If a hydrogen bomb were dropped at Westminster, everything within 8 miles would be completely destroyed. No person or building would survive. Sixteen miles away temperatures would still be great enough to melt some stone—from 10 to 100 times as hot as boiling water. At Tilbury the Thames would still be boiling, and the sea would be unbearably hot even at Southend, where most of the houses would be destroyed and few people would survive.



Ships off Colchester in the Thames Estuary would be sunk by the storm caused by the vast pressure waves that the explosion would create. Tidal waves would batter Calais and the French channel ports. In Peterborough, Southampton and parts of the Isle of Wight many houses would collapse. Yet if the Nagasaki bomb had been dropped at the same point, little damage would have been done beyond Regent's Park, Hyde Park and Battersea Park.



The Range of the Bomb

The central circle indicates the area within which everything would be destroyed. A bomb 35 times as big as that planned would have a spread of 1,500 miles. This could be carried by sea and blow up the whole continent of Australia.

experiments and actual hydrogen-bomb making: you cannot put a cyclotron in a bomb to throw the atoms at one another. Yet here again past theory and experiment supply the answer. If you have great enough temperatures or pressures you can produce the same effect.

The hydrogen atoms in the air don't join together to make heavy hydrogen, nor the much smaller number of heavy hydrogens in the air to form helium, because the electrical balance between the minute particles such as neutrons, protons and electrons, which are the core of the atom prevent this happening. Ordinary atoms of hydrogen can be brought together artificially by being thrown at one another, and then even they will react to form a single heavy hydrogen atom (a deuteron). When this happens a vast mass of energy is given off. This energy is of the order of 1,400,000 electron volts; not nearly as much as that released by the chain reaction of heavy hydrogen (or ordinary hydrogen) into helium, but equal to about two million times the energy given off by burning coal.

Thus, if great enough temperatures or pressures can be created, the positive distaste of one hydrogen or heavy hydrogen atom for another one can be overcome, and they will just have to meet. When they do, the hydrogen super bomb results.

It is known that the heat of the sun and in some stars is great enough to bring this about, and it is known that when an ordinary atom bomb explodes sun heat is reached, at least over a small area, and for a brief period of time. Great pressures are also created.

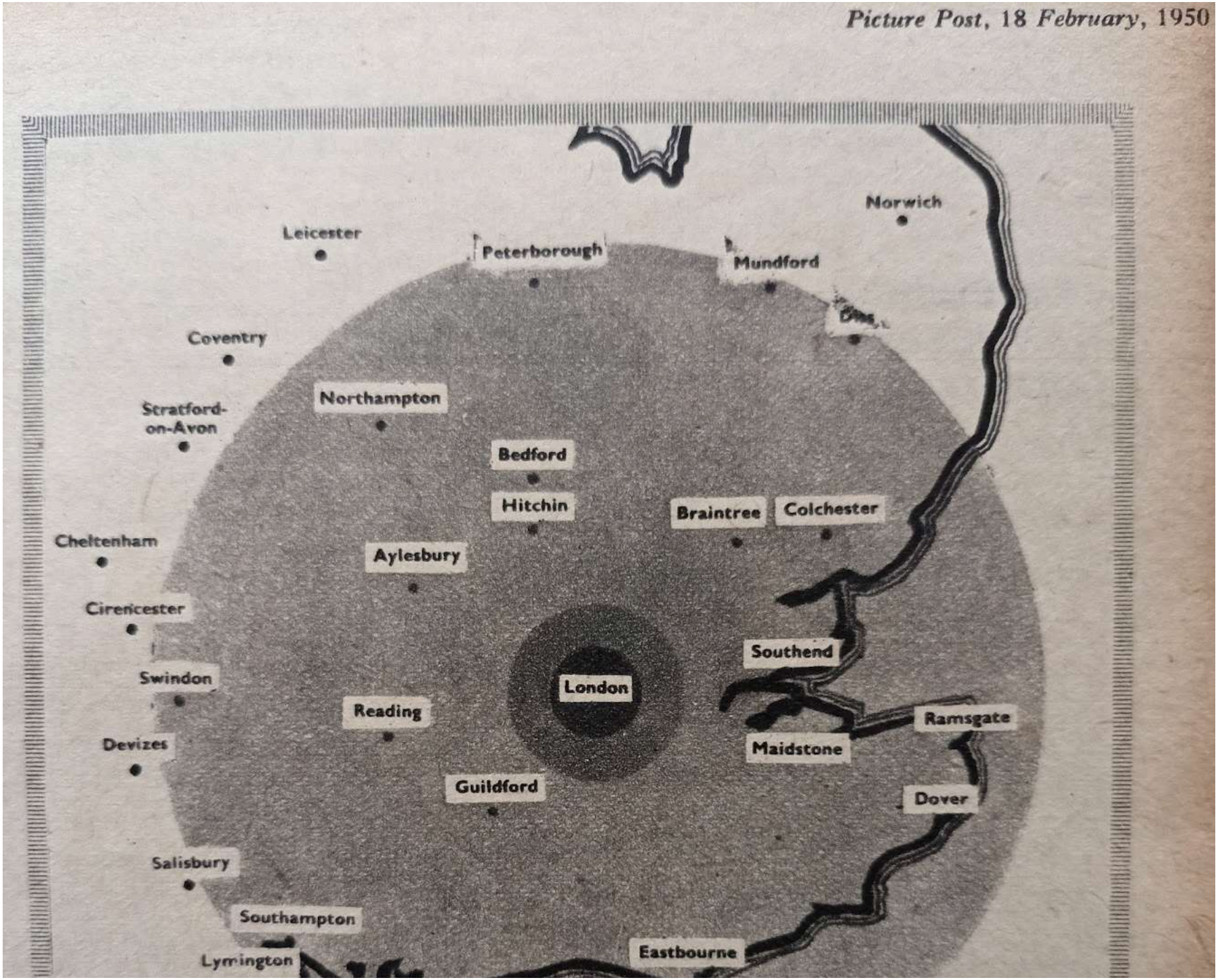
One type of bomb can therefore be used to set off the other bomb, providing sufficient heat is reached in any one part of the exploding old-type bomb, and that the heavy hydrogen can be kept in close enough contact with the heat source for the chain-reaction to start. Alternatively the heavy hydrogen must be restricted within the force-range of the exploding uranium bomb long enough for a great enough pressure to be built up in order to force the hydrogen atoms into contact, and so start the reaction. There are practical difficulties, but they are not insuperable. Contrary to what some scientists believe, it is now established that only a small quantity of hydrogen need be present for a successful reaction to occur; there is no 'threshold quantity' which has to be used and set going before the chain reaction starts.

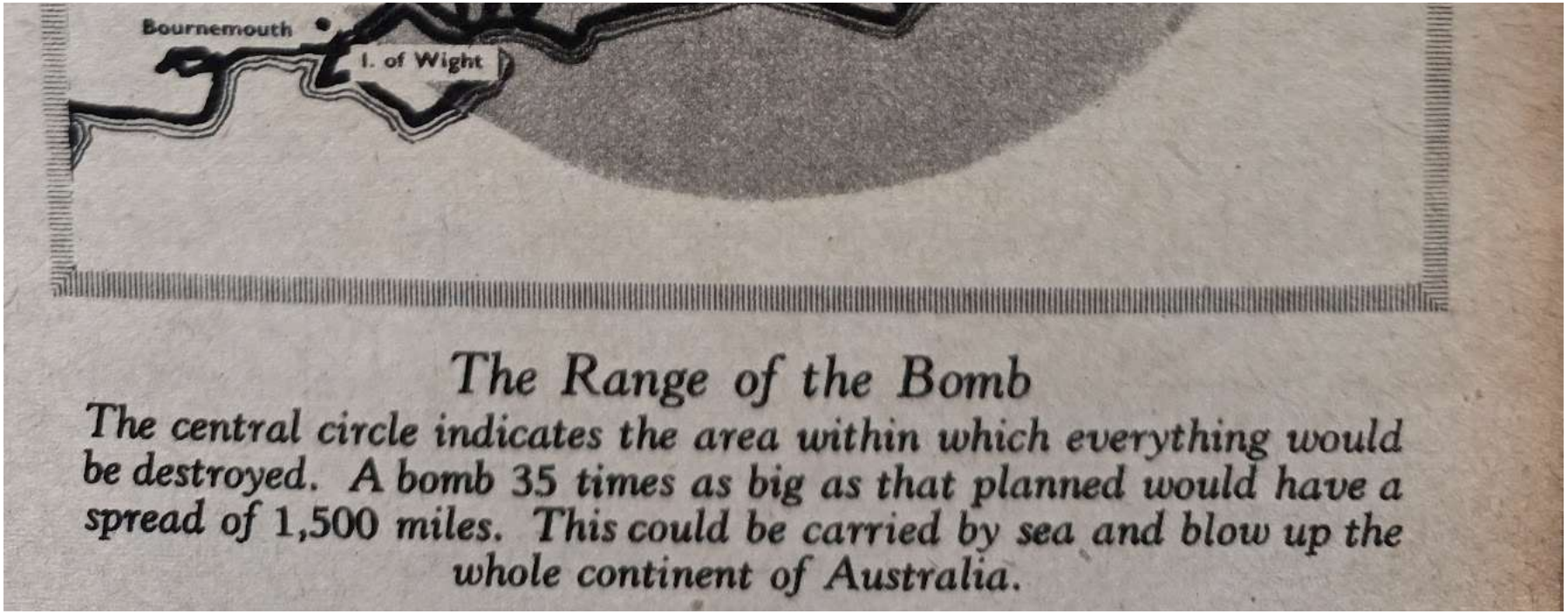
It is clear, however, that if a *very* large hydrogen bomb is made, it will have to be a serial or chain bomb: a bomb behind a bomb behind a bomb. Theoretically it can be imagined as a bomb within a bomb, with a uranium bomb inside the smaller of the two hydrogen ones.

Too much hydrogen could not be contained within a single shell, or neither enough temperature nor pressure would be produced by the exploding plutonium bomb. The walls of the super bomb will need to be both especially strong, and made of materials (like graphite) which do not absorb the electron energy produced and so dissipate much of the splitting reaction.

When the uranium bomb is set off, it will start the first hydrogen chain reaction, and this hydrogen bomb will in its turn set off the larger amount of heavy or other hydrogen (or lithium hydride) in the outermost shell.

Continued overleaf


Picture Post, 18 February, 1950
Norwich
Leicester
Peterborough
Mundford
Coventry
Northampton
Stratford-on-Avon
Bedford
Hitchin
Braintree
Colchester
Cheltenham
Aylesbury
Cirencester
Southend
Swindon
London
Reading
Ramsgate
Devizes
Maidstone
Guildford
Dover
Salisbury
Southampton
Eastbourne
Lymington



The Range of the Bomb

The central circle indicates the area within which everything would be destroyed. A bomb 35 times as big as that planned would have a spread of 1,500 miles. This could be carried by sea and blow up the whole continent of Australia.

Picture Post, 18 *February*, 1950

BRITISH SCIENTISTS ANSWER THE QUESTION ALL THE WORLD IS

PROFESSOR KATHLEEN LONSDALE
F.R.S., Executive Secretary, Atomic Scientists' Association.



I believe that the use of all weapons of mass destruction is utterly immoral. I think that scientists and technicians should refuse to work on them. But they are not the only people who are responsible. The citizens who pay for the work to be done, and the politicians who are allowed, through public inertia, to decide that it shall be done, are also responsible. A heavy responsibility rests, in particular, upon the Christian Churches, who have in general sat on the fence and who have failed to give any moral lead to the world, presumably for fear of weakening the hands of the politicians on their own side. Christians, of all people, ought to realise that to talk of hydrogen bombs as a possible instrument of God's justice is pure blasphemy. Neither ideals nor civilisation will be saved if they are used, for they will destroy both simultaneously.

I realise, of course, that the hope in the minds of most people (politicians who give orders, scientists who obey, and citizens who ultimately pay and therefore effectively approve) is that huge armaments, stockpiles of plutonium and hydrogen bombs, biological weapons, conscripted armies and the rest, will *prevent* war and prevent also the aggression which might lead to war. I believe this to be a most immoral and a frightfully dangerous gamble in the lives of millions of men and women. Immoral, because it is based on belief in the potency of fear as the driving force in the war, dangerous because it puts enormous power into the hands of a relatively few people, who may easily be corrupted by it, and a gamble, because it may well fail, especially if directed against a nation or politicians to whom human lives are relatively unimportant.

What, then, is the alternative? Politicians realise (as most people, I think, do not) that the alternative to 'arming to the limit' is complete disarmament. They regard this, however, as an even more desperate expedient. It is, of course, equally a gamble. It means that we would have to put our faith in attempts at genuine friendship and goodwill, instead of in fear and threats. I believe that we should do this, whatever the consequences, and that our foreign policy should be reshaped on the assumption that all peoples everywhere desire peace and that, if given a lead, they would be willing to try together to build up a world in which our children need not be afraid of growing up.

PROFESSOR R. E. PEIERLS
F.R.S., Professor of Mathematical Physics at Birmingham University, a Pioneer Atomic Scientist



I am very sorry to know that work on the hydrogen bomb is going ahead. I would be sorrier still to believe that there was any likelihood of it being used. The 'old-fashioned' atom bomb project opened up also important constructive uses, but this is most unlikely with the hydrogen bomb. The effort that will be put into the new project is therefore on a level with that going into the manufacture of ordinary bombs, war-planes or submarines, only the new weapon will be enormously more expensive and infinitely more terrifying. It is a sign of failure of our hopes for the future of international relations that it should be considered necessary to go ahead with a project like this. The justification for this is not necessarily any intention to use it, but as a move in an atomic armaments race, which was bound to start unless international agreement could be reached on these and other armaments. I do not believe, in spite of these discouraging developments, that war is certain or even likely. With new and terrifying weapons both winner and loser in any war will suffer severe destruction, and as a result nobody will resort to war lightheartedly. We must go on losing no opportunity to reach agreement or to improve international relations. This is not a question on which a scientist is qualified to speak, but one does worry what effect the new announcement about the hydrogen bomb will have on international relations.

DR. BARNES
Bishop of Birmingham, Doctor of Science and Fellow of the Royal Society.

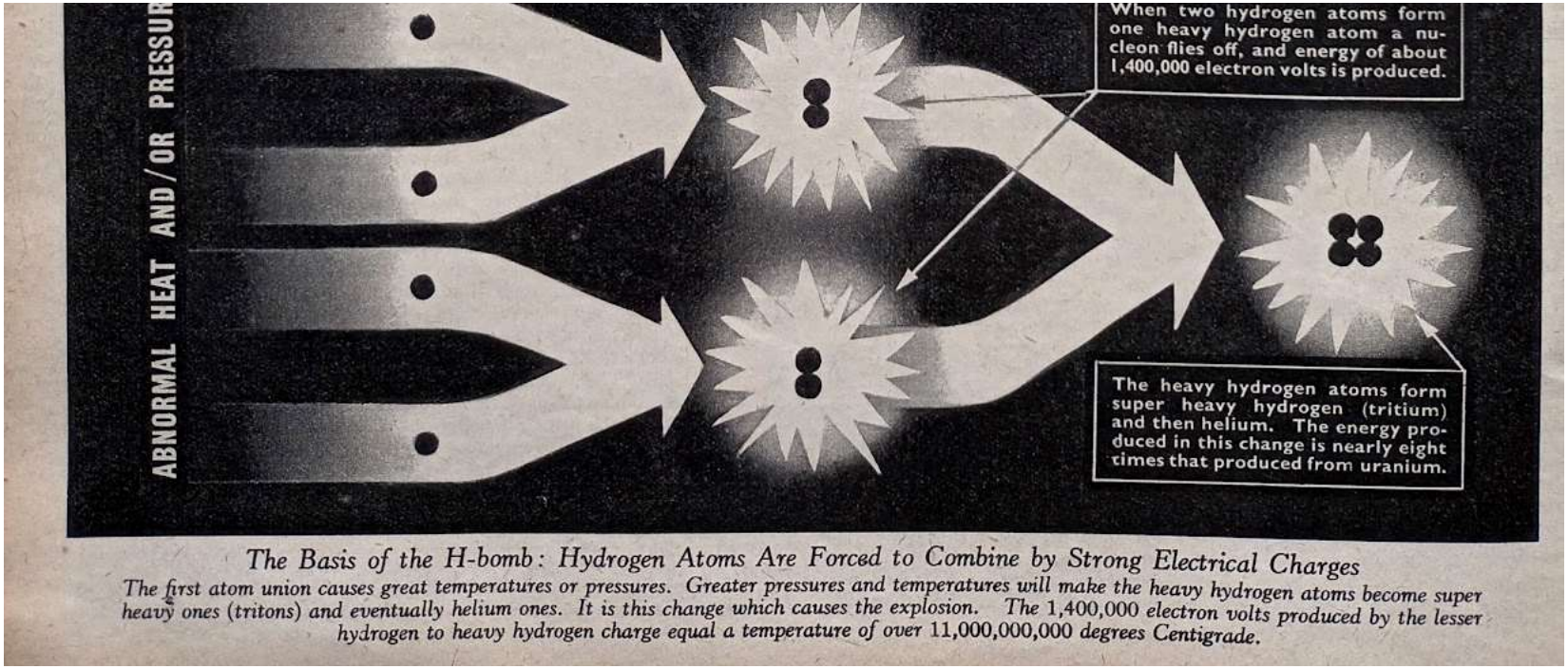


I do not think it right to kill people in order to get my own way or in order to resist someone whom I regard as evil. Neither do I think it right that any nation, my own included, should make elaborate preparations to kill, even for a good cause, large numbers of people belonging to other nations.

In Christ's teaching we find no approval of war. We are to do unto others as we would have them do unto us. Christian ecclesiastics are apt to avoid Christ's teaching because they are afraid to lose what they call freedom and to risk injury to themselves and to their loved ones. So when their nation, or one thought friendly, invents a new and devilish weapon, they do not repudiate its use.

The use of atom bombs against Japan without notice was, surely, a disgrace to the Governments using them. It seems certain that the hydrogen





The Basis of the H-bomb: Hydrogen Atoms Are Forced to Combine by Strong Electrical Charges

The first atom union causes great temperatures or pressures. Greater pressures and temperatures will make the heavy hydrogen atoms become super heavy ones (tritons) and eventually helium ones. It is this change which causes the explosion. The 1,400,000 electron volts produced by the lesser hydrogen to heavy hydrogen charge equal a temperature of over 11,000,000,000 degrees Centigrade.

Picture Post, 18 *February*, 1950

ASKING: WHAT SHOULD BE DONE ABOUT THE HYDROGEN BOMB?

PROFESSOR H. S. W. MASSEY

F.R.S., Goldsmith Professor of Mathematics, London University.



If the hydrogen bomb is technically feasible, and we must assume from recent reports that it is, there is no doubt that it could be a very much more powerful destructive agent than the 'conventional' atomic bomb. Indeed, since it would operate in a manner similar to those processes which provide the heat of the sun and stars, care might have to be taken to prevent the explosion spreading far beyond the range contemplated. With the conventional bomb there is no risk at all of this happening.

The use of weapons of this kind in a future war is an appalling prospect which could hardly fail to plunge the world back into a new dark age. It is not even absurd to contemplate the possibility of the whole world being converted into a new minor star in the course of a frenzied search by potential or actual combatants for newer and better bombs!

Further effort must be made to grapple once more with the political problems which stand in the way of an agreement to abolish weapons of mass destruction. Sufficient safeguards must be provided to minimise the risk run by the individual nations in permitting some degree of inspection or in giving up the use of certain weapons. Possession of the most up-to-date bomb is no protection for any country.

Some way must be found to end the atomic arms race, otherwise colossal disaster is certain. Obvious as this was a few years ago, it is surely even clearer now.

PROFESSOR MAURICE H. PRYCE

Wykenham Professor of Physics, Clarendon Laboratory, Oxford.



I am very sorry to hear that the United States have decided to go ahead with the manufacture of the hydrogen bomb; though I cannot say that I am surprised by their decision. In the present state of mistrust between America and Russia it could hardly be otherwise. But I think it is a healthier state of affairs to have the possibility of a hydrogen bomb brought out into the open. The desirability of international agreement over atomic weapons is brought more sharply into view. And it must be a realistic agreement to which both Russia and America can subscribe. The difficulty of agreement is not reduced, but its urgency is greatly increased.

Scientific circles have for some time suspected the possibility of a "super-bomb' using hydrogen in some form. Indeed such a device has been described in an Austrian book on atomic energy. The attempt to keep the broad principles a secret could not remain successful for long, and involves suppressing information of scientific value which has only a remote connection with the manufacture of hydrogen bombs. Such secrecy ends by being harmful, by preventing the free interchange of fundamental scientific information, and seldom achieves the purpose of stopping another country from developing a weapon. This was demonstrated by the recent Russian atomic bomb, although it must be granted that many of the purely scientific principles had been openly published.

I therefore welcome the fact that the hydrogen bomb has come out into the open, though I much regret that it is being manufactured. I hope that neither it nor the atomic bomb will be used on any future occasion.

DOCTOR E. H. S. BURHOP

of London University. Member of Association of Scientific Workers, Atomic Energy Committee



The uranium bomb is in the 'production stage' and it would not affect the building of more and more U-bombs if the scientists working on them refused to co-operate. The uranium bomb is now mainly in the hands of technicians.

The hydrogen bomb, on the other hand, is at a stage where if about one hundred leading scientists withheld their services, it would probably not be possible to make it.

I think that if only one of the two countries who are capable of making the bomb declared that they would not under any circumstances make any attempt to develop this weapon, then the other country would probably not continue development work; firstly because of the great expense involved, and, secondly, because the bomb would have little military significance, but could only be used for mass terror against civilian populations. This underlines the necessity to bring scientists of all countries together to discuss action to stop making such mass-terror weapons.

Immensely large size could only be accomplished by means of a bomb which contained a series of such layers or links. Helium gas only becomes liquid at very low temperatures, but recent research has shown that it can be made to liquefy at room temperatures, when pressures of the order of 100,000 lbs. are used. Scientists believe that pure heavy hydrogen can be made in a liquid form in a similar way, thus enabling pure heavy hydrogen to be used in the hydrogen itself, can be used, this mass of dead, non-reacting material is eliminated. Then the 'mass defect' of the hydrogen is greater than that when the uranium is changed. But if Tritium is used, the mass defect is very much smaller.

A mass defect of 0.0292 in the atomic weights of the hydrogen which starts the reaction, and the helium which ends it is, in a sense, both the record of

form in a similar way, thus enabling pure heavy hydrogen to be used in the hydrogen bomb. Tritium (super heavy hydrogen) can also be made in atomic piles.

The size of such a bomb would be limited only by the difficulties of transport. It is probable that a three-stage bomb, containing the uranium or plutonium core and two layers of hydrogen, will prove to be the limit of size for air-transport. But the possibilities of water transport must not be forgotten. A hydrogen bomb could be built inside a tramp steamer, or other vessel, and war started by means of a Pearl Harbour type of attack. But such a vessel would need to be manned by suicide squads, since it is improbable that a vessel could lie long enough uninspected off a coast, or in some little-used port for the crew to make their escape. Nevertheless the possibility is there.

The power of the hydrogen bomb does not depend entirely on the fact that it can be made much larger than the uranium bomb, but also on much more fundamental physical factors. Thirring's calculations are based on the possible use of hydrogen compounds, and do not give a clear picture of the potential power of the bomb.

The energy produced by the hydrogen to helium change depends, like the uranium-splitting change, on the difference in weight of the first materials and the end product. This difference is called the 'mass defect.'

If heavy water is used in the hydrogen bomb (heavy water is manufactured expensively, but in quantity by submitting ordinary water to high voltage electrical charges, until all the hydrogen atoms become heavy hydrogen ones) the power is lessened by the large amount of oxygen present, one oxygen atom on the atomic scale being equivalent to sixteen ordinary hydrogens, or eight heavy hydrogens. The same applies if paraffin wax containing heavy hydrogen atoms is used. If, however, a purer form of heavy hydrogen, or even

the energy produced and the recording of the flying-off of the neutron which is brought about by the reaction. This potential energy is approximately eight times that of the uranium change: 182,500 kilowatt hours against 22,500 kilowatt hours.

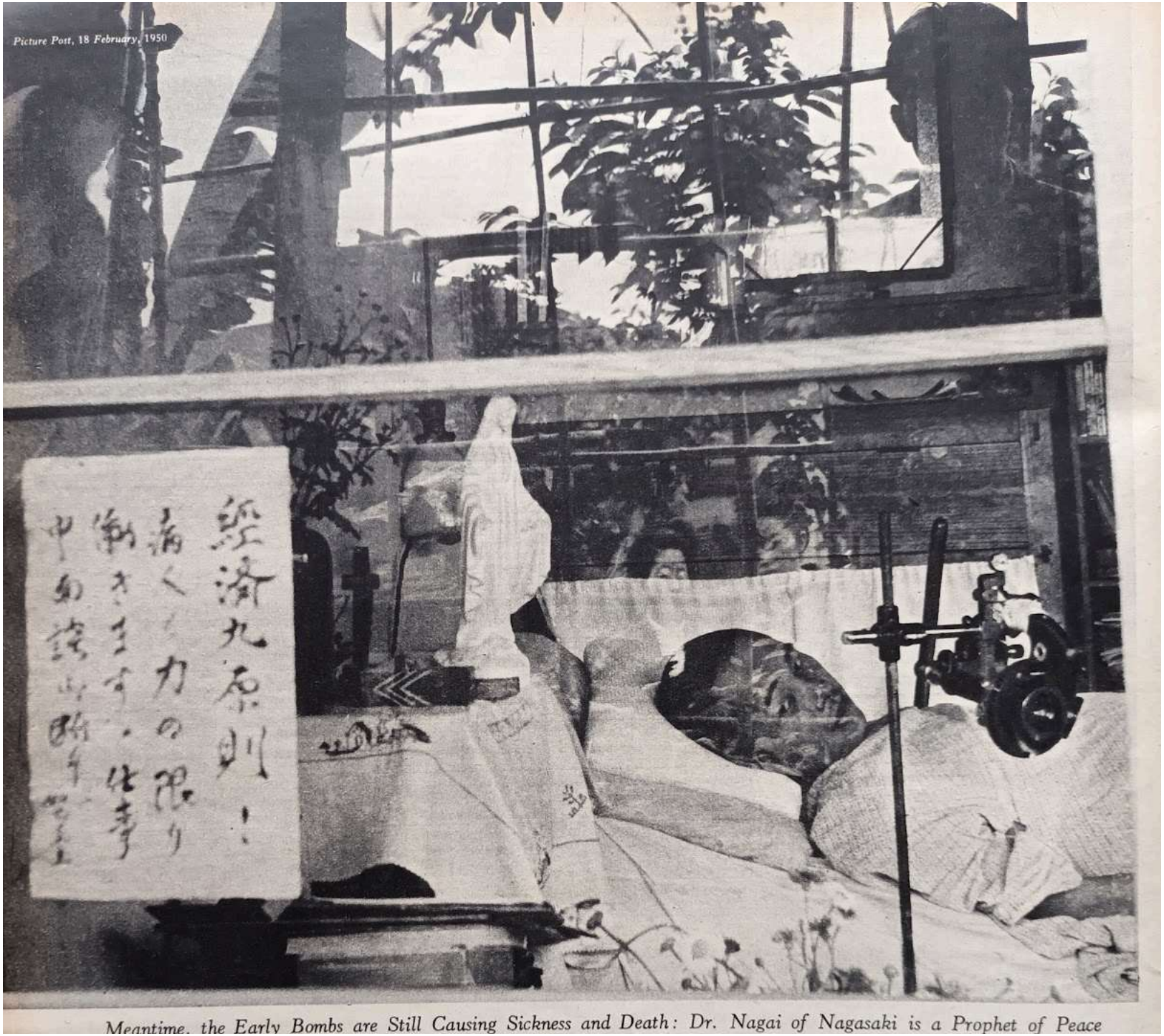
The hydrogen reaction is also much more efficient than the uranium reaction, once it can be set going. One of the greatest problems in atomic bomb manufacture has been to obtain efficiency of disintegration; will the reaction be complete? Will all the uranium (or its secondary product plutonium) disintegrate, or will only a small part of the material be affected? It is known that in the first atomic bombs only a small part of the 'fissionable material' did in fact disintegrate, and recent accounts of better and better bombs—"we like the results"—have largely been concerned with this type of efficiency. At least a 12 per cent. greater efficiency can be expected from the hydrogen reaction, and probably very much more.

Now the hydrogen bomb reaction is very different from the uranium reaction in another way: it is a building reaction, not a breakdown one. The uranium breaks down (splits) into smaller and smaller elements. The hydrogen is, however, the simplest of all elements in its ordinary form. Heavy hydrogen has twice the atomic weight of the ordinary hydrogen, and is almost indistinguishable in its chemical properties, but is the next biggest element. The hydrogen chain is a building-up one. The end product helium is a bigger atom than the hydrogen atoms that started off the changes.

Another important fact is that the hydrogen reaction does not lead to the production of radio-active by-products, as the uranium one does. It will only do so if it starts off reactions in other much larger atoms. It has no other use than that of a power producer. But the power produced cannot conceivably

Continued overleaf

Picture Post, 18 February, 1950



Meantime, the Early Bombs are Still Causing Sickness and Death: Dr. Nagai of Nagasaki is a Prophet of Peace

For four years Dr. Nagai has been dying of radiation sickness. Warfare with dust bombs would mean millions of such victims. Doctors know no cure. The end may be death, cataract or blindness—often after long years of illness. Dr. Nagai spends his last years writing books against atomic warfare and thousands read and wonder what will be the eventual fate of man.

be harnessed for peaceful purposes, as it is too great. It is, therefore, only a weapon of war. Thus it is fair to say that there is an 8 times greater reaction if you can use a hydrogen bomb, than if you can use a uranium one of the old type, and at least a 12 times greater efficiency. That is to say, nearly a hundred times better bomb all told ($8 \times 12 = 96$). But this is not the whole difference, for if you can use hydrogen, you can use more of it. You don't have to, but you can do. If you can use only eleven times more hydrogen, you have a bomb giving a thousand times as much energy, and therefore a thousand times more destructive.

Such a bomb would be capable of melting stone at distances up to 16 miles away from where it was dropped, and knocking down some buildings as far as 80 miles away from the centre of the explosion.

Not only is hydrogen potentially more powerful than uranium and such theoretical alternatives as lithium hydride, but there is virtually no limit on the amount of heavy hydrogen which can be produced, and *no theoretical limit to the size of the bomb which can be constructed.*

Will such a bomb 'set the atmosphere on fire'? We don't know. It should not do so, because the pressure and heat will disperse rapidly, and these are necessary in order to start the chain-reaction in the atmosphere just as in the bomb itself. But too big a bomb might do just this. In theory it *would* be possible to construct a hydrogen bomb along the lines described, which would create enough temperature and pressure for it not to be dissipated rapidly enough in the atmosphere for the avoidance of this terrifying event. But such a bomb would have to be of vast size, for the reaction to maintain itself in the sparsely scattered hydrogen and heavy hydrogen atoms of the atmosphere unless large numbers of other elements also become involved. It could certainly not be airborne under present conditions of air transport. Yet there is uncertainty about this danger even with a hydrogen bomb which could be carried in aircraft, and all we can say at the moment is that "It may, *but it almost certainly won't.*"

Not only is it certain that advanced experiments on the hydrogen bomb are being made in America, but constructional plans have reached the blueprint stage. It is known that experiments are under way in Russia.

That is the story. There are no great difficulties, and the hydrogen bomb can soon be a reality, if either America or Russia decide to make it.

IN this welter of bomb speculation one other prospect is neglected: the possibility of war by means of radio-active dust. Wherever atomic piles are in use, vast quantities of radio-active isotopes are produced. Over two hundred isotopes are known, and these include over a hundred radio-active ones (not all isotopes are radio-active). They are being used for a variety of purposes. They are valuable aids to medical research and veterinary research and therapy. Yet they can also be used for harm. In some cases absorption of so small a quantity as a $\frac{1}{4}$ millionth part of a gram would be sufficient to cause illness and eventual death. If these substances could be scattered in large quan-



The Crowds Outside Revere Him Because of His Courage in the Throes of Lingering Painful Death

The Crowds Outside Revere Him Because of His Courage in the Throes of Lingering Painful Death

Some have come from hundreds of miles. Some spent their savings to pay the fare. They come to pray for Dr. Nagai. They come to pay their respects to a brave man of triumphant spirit. Perhaps they are inspired by sentimentality. Perhaps by morbidity. Perhaps by curiosity. Many know that in the last months cases of cataract, caused by the atom bombs of 1945, are suddenly starting to occur.

tities in the atmosphere over a large city, nearly the whole population would be killed. There would be no cure. Some of these isotopes (chemicals which are similar in behaviour to their ancestors but which have greater atomic weights) are by-products of the manufacture of plutonium from uranium.

Many of these dusts have only a short radio-active life. This means that cities attacked with them could be occupied by hostile troops in perfect safety only a short time after the initial attack. Buildings and factories would remain undamaged.

Normally these substances have to be kept in lead containers, and it would obviously be impossible to pack the dust bomb full of lead containers, and it would be difficult to obtain effective scattering if this were done. It would therefore be necessary to pack them in bulk within a large container, lined with lead or some similar substance in order to reduce the dissipation and escape of radiation. It is possible that the scattering explosives would also have to be protected against radiation in order to prevent their being exposed to possible reaction. The same factor would operate in the case of the larger charge which would be necessary in order to split the bomb case.

Yet these dust bombs can be envisaged as large containers containing bulk radio-active dust with protected explosive charges scattered amongst them, and a larger explosive charge at one end in order to split open the shell and start the scattering.

These dust bombs could be delivered by specially-protected planes which would carry them in bomb holds which are specially shielded off from the pilots' quarters in order to protect them from the leakage of radiation. A largish explosive charge would detonate the bomb soon after its release from the plane, while it was still in the air, and the smaller charges would explode on contact with the ground or just before this, in order to help scatter the dust. Delivery by rocket or V2, as suggested by Thirring, would be possible, but would not make scattering an easy task.

Unfortunately, this method of warfare *cannot* be dismissed as unlikely, or impracticable, and although the practical aspects do present many problems, these are not nearly so great as those which confronted the makers of the first atomic bomb. The major difficulties are the protection of the workers assembling the dust-bombs, the prevention of deterioration of the radio-active dust while in its bulk state awaiting delivery, and the working-out of methods of scattering by means of explosive charges which themselves may need protection from their evil fellow-travellers.

Scientists may continue to shrug their shoulders and dismiss the dust bomb as full of snags, or not very likely to be used when atomic bombs are available, yet the danger must be faced that one day, if not already, one of the countries possessing atomic piles may decide to explore this method of warfare, and perfect it. If so, the result may be equally macabre, if not so immediately spectacular, as warfare conducted with super hydrogen atom bombs.

DEREK WRAGGE MORLEY

Message to mass-media journalists: please don't indulge in lying "no defence" propaganda as was done by most of the media in previous pre-war crises!



NIE 11-3/8-84/85

SOVIET CAPABILITIES FOR STRATEGIC NUCLEAR CONFLICT THROUGH THE MID-1990s

KEY JUDGMENTS

Information available as of 25 April 1985 was used in the preparation of this Estimate, which was approved by the National Foreign Intelligence Board on that date.

[ ] While there are differing views, we assess that the Soviets have deployed, and will continue to deploy, some missiles with more warheads than the maximum number flight-tested—the total of reentry vehicles (RVs) actually released plus those simulated. [

] The number of warheads could be significantly underestimated under an arms control agreement that counted deployed warheads by using the maximum number flight-tested on each missile type. This problem is of current concern [

it will be a problem for future MIRVed ICBMs and SLBMs. [ ]

Russia's nuclear mindset as analysed in top secret 1985 Reagan era assessment of the strategic nuclear war risk.

Soviet leaders view arms control policy as an important factor in advancing their strategy of achieving strategic advantage. They have been willing to negotiate restraints on force improvements and deployments when it serves their interests. Moscow has long believed that arms control must first and foremost protect the capabilities of Soviet military forces relative to their opponents. The Soviets seek to limit US

Planning for Nuclear War

Soviet military planning is guided by fundamental Soviet wartime objectives: to decisively defeat enemy conventional and nuclear forces, occupy enemy territory in the theater, and defend the homeland against enemy attack. To meet these objectives, the Soviets train their forces for a global nuclear conflict. This training has diversified in scope and become increasingly complex in the operational factors with which it deals.

The Soviets apparently believe that a major nuclear conflict, if it occurred, would be likely to arise out of a NATO–Warsaw Pact conventional conflict preceded by a political crisis period that could last several weeks or longer. They perceive a conventional phase as lasting from a few days to as long as several weeks. The Soviets see little likelihood that the United States would initiate a surprise nuclear attack from a normal peacetime posture; we judge it is unlikely that the Soviets would mount such an attack themselves. Key objectives of the Soviets in

The Soviets, following the initial large-scale nuclear strikes, plar reconstitute some surviving general purpose and strategic forces and occupy substantial areas of Western Europe, while neutralizing ability of US and Allied nuclear forces to interfere with these objectiv The Soviets would clearly prefer to accomplish their objectives quicl but recognize that the later phases could be protracted, given difficulty and complexity of conducting operations following large-sc nuclear strikes. They prepare for combat operations that could exte weeks beyond an initial nuclear phase.

As force modernization proceeds, the Soviets will continue to r primarily on silo-based ICBMs for use in initial strikes, while withhc ing many of their SLBMs and presumably most of their disper mobile ICBMs for subsequent strikes during later phases of nucl conflict. They also would attempt to reload and refire some ICB many SS-20s, and probably some SLBMs, using reserve missiles a

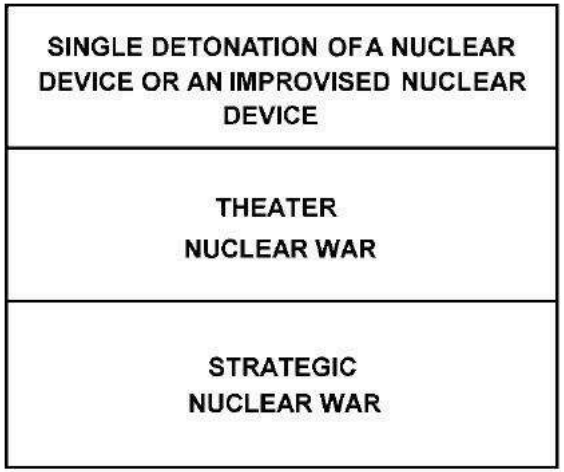
Capabilities of Strategic Forces

The Soviets have enough hard-target-capable ICBM reentry ve cles today to attack all US missile silos and launch control centers a will have larger numbers of hard-target-capable RVs in the futu There are slightly differing views on the capabilities of the SS-18 damage US Minuteman silos, leading to a best estimate of the expect damage to a silo from two Soviet warheads of about 70 percent, in c view, to about 80 to 85 percent, in the other. [

Dispersed Soviet mobile missiles, many SSBNs patrolling in wat near the USSR, and a large part of the silo-based ICBM force would s vive an attack by current US forces. We judge that the Soviets c launch ICBMs on tactical warning, assuming their warning and co mand and control systems were undegraded. However, with increasing vulnerability of Soviet ICBM silos during the period of t

The Soviets, while well aware of their inability to prevent massi damage to the USSR with their strategic defenses, even with tl improvements taking place in these forces, have a large program provide protection for their leadership. We judge that, with as little as few hours' warning, a large percentage of the wartime manageme structure would survive a large-scale US nuclear attack. [

] we estimate there are [
] possibly as many as 1,500 relocation facilities [



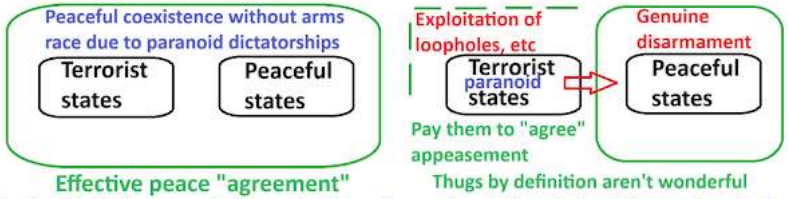
U.S. ARMY FIELD MANUAL FM 4 - 02 . 283, TREATMENT OF NUCLEAR AND RADIOLOGICAL CASUALTIES, 2001 FIGURE 1-1.

"Controlling escalation is really an exercise in deterrence, which means providing effective disincentives to unwanted enemy actions. Contrary to widely endorsed opinion, the use or threat of nuclear weapons in tactical operations seems at least as likely to check as to promote the expansion of hostilities."

- Bernard Brodie, Escalation and the nuclear option, RAND Corp memo RM-5444-PR, June 1965, p. vi.

SET THEORY OF PEACE AGREEMENT

What's needed: What happens:



Herbert York (Livermore designer of light pusher and case H-bombs) on "The Nuclear Age" TV show (1989): use "police" to ban war, in analogy to the way they allegedly ban crime!

Problem: analogy in practice would be for the "police" to end up nuclear-armed ... n-war.

Then you "improve" that situation by deciding to DETER.

At this point, you have only re-invented the wheel: nuclear deterrence under a new name.

The prob and solution remain the same. Paper doesn't deter thugs in the real world mate.

Simply yelling "F==ing Nazi" at someone like Kahn who tells you this doesn't solve anything

Except if you have deep paranoid delusions and you imagine dictatorships genuine utopias

High Power Laser and Particle Beams, 2024, 36: 076003

Simulation research on energy distribution of light radiation from nuclear explosion

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Abstract: Light radiation is a crucial component of the energy produced in nuclear explosion, making the study of its space distribution highly significant. This paper presents the derivation of a formula for computing thermal energy induced by the light radiation of a nuclear explosion. The derivation integrates the fireball development laws with the transient energy dynamics of light radiation. The resultant formula exhibits a dependency on several factors, including the height of the explosion, the yield of the explosion, atmospheric attenuation coefficients, as well as the radius and temperature of the fireball. By creating diverse maps and adjusting pertinent parameters, simulating calculations are conducted to elucidate the distribution patterns of the transient thermal energy from nuclear explosion light radiation. Furthermore, the burn injury grading standards are incorporated into the simulation by introducing a search function that autonomously categorizes the injury grading zones on the virtual map. What's more, neural networks are employed to train the numerical models, aiming to discern the correlation between the parameters associated with nuclear explosions and the injury grading radius on the map. This innovative approach enables direct prediction of the injury grading radius based on nuclear explosion parameters, thus significantly shortens the calculation process.

Thermal transmission

$$\tau = e^{-\mu r} + 0.32(\mu r)^{1.8} e^{-0.88\mu r}$$

中国人民解放军总装备部军事训练教材编辑工作委员会. 核爆炸物理概论[M]. 北京: 国防工业出版社, 2003. (The Military Training Textbook Editing Committee of the General Equipment Department of the People's Liberation Army of China. Introduction to the physics of nuclear explosions[M]. Beijing: National Defense Industry Press, 2003)

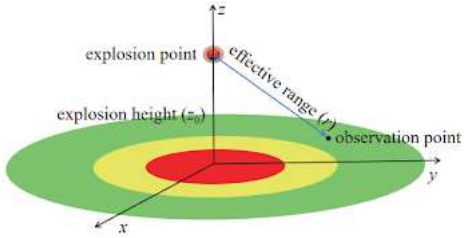
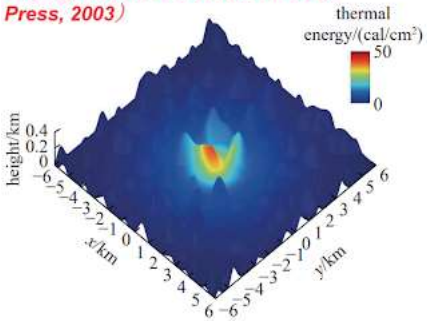
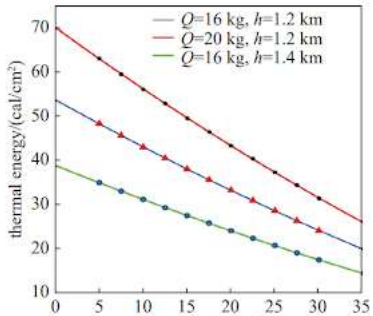


Fig. 1 Thermal radiation model of point source explosion



(a) Q=16 kg h=1.2 km, humidity 10g/cm²



(b) at 0.9 km position

Fig. 7 Relationship between humidity and thermal energy of nuclear explosion

表 1 光辐射对生物的烧伤伤情分级标准

Table 1 Grades for classification of biological burns caused by light radiation

grading rules of injury severity in light radiation burns	ratio of burn area	thermal energy value of light radiation/(cal·cm⁻²)	condition
minor burn	<10%	5.01~14.95	Systemic symptoms are generally not obvious and usually do result in loss of combat effectiveness.
moderate burn	10%~20%	14.95~30.14	Systemic symptoms are obvious, and some may experience s but the injuries are usually not very serious.
severe burn	20%~50%	30.14~50.17	Systemic symptoms are generally severe, with shock occurri the early stages and soon entering an infection phase that last several days to weeks. If actively treated, the vast majority o injuries can be cured, and they will quickly lose their combat effectiveness after injury.
extremely severe burn	>50%	>50.17	In the early stages, there is often severe shock, and infections appear early and severe, which brings great difficulties to treatment. The injured will immediately lose their combat effectiveness after injury.

Figure 7(a) shows thermal radiation for 16 kt at 1.2 km burst altitude and humidity of 10 g/cm2. Figure 7(b) show the relationship between humidity and distance in a nuclear explosion.

The thermal energy relationship curve at a position centered at 0.9 km shows that as the humidity gradually increases, a large amount of water vapor absorbs and shields the infrared radiation appreciably.

Table 1

data sources: 王坚, 李路翔. 核武器效应及防护[M]. 北京: 北京理工大学出版社, 1993. (Wang Jian, Li Luxiang. Nuclear weapons effects and protection[M]. Beijing: Beijing Institute of Technology Press, 1993) and 姜巍巍, 李奇, 李俊杰, 等. BLEVE 火球热辐射及其影响评价模型介绍[J]. 工业安全与环保, 2007, 33(5): 23-24. (Jiang Weiwei, Li Qi, Li Junjie, al. The introduction of the BLEVE fireball thermal radiatio and its impact assessment model[J]. Industrial Safety an

Increasing humidity from the 5 g/cm2 in Nevada desert to 30 g/cm2 in a river or coastal based city will halve the thermal energy received at 900 metres. (Never mind the effect on increasing the energy needed to ignite paper, wood, etc.)

and its impact assessment model[J]. Industrial Safety and Environmental Protection, 2007, 33(5): 23-24).



https://x.com/Gerashchenko_en/status/1798075709916873021

Russian State TV Channel 1: 4 June 2024. ("Proxy movements" = Western Russian-supporting "arms control and disarmament etc.")



https://x.com/Gerashchenko_en/status/1797914275572588979

ABOVE: **Russian State TV Channel 1 on the nuclear threat, 4 June 2024. This is not a matter of unthinkable escalation or a knockout blow that will disarm Russia entirely (by firing all its weapons at the West!). It is a matter of coercive threats, which may or may not be accompanied by "demonstration strikes". Putin knows that unlike former USSR territories (e.g. Ukraine) which have heavy duty shelters in cities, the West doesn't have such civil defense to make its nuclear deterrent credible, so there is an exploitable asymmetry for Putin. This Russian state TV Channel 1 "propaganda" is Russian language: it's not aimed at the West, but at Russians, to prepare the road for possible nuclear warfare with the West. This is not about the usual image of an escalatory WWIII, but about establishing Russian hegemony, by making the West back down! As in the 1930s, popular media "selective journalism" (mainstream fake/fashionable fairy tale news) ignores real threats, by using the trick of hyping up deception (knockout blows, escalation, etc.) to make reality appear "unthinkable". Don't be taken in again by this mass media scam, please!**

Again, to recap: the biggest threat is nuclear coercion as occurred when Russia broke a ceasefire and resumed nuclear testing in 1961, and built the Berlin Wall, then in 1962 put nuclear weapons into Cuba's fanatical dictatorship. This is not the mainstream media portrayal of the "nuclear threat" (immediate knockout blow, total disarmament in a few seconds by exploding everything in the stockpile, which is loved by TV, newspapers, magazines, and films and which - like the gas bomb knockout blow hype of the 1930s - makes war appear "unthinkable" to support appeasement, disarmament and arms control delusions which are bits of paper that simply can't stop the real threats from dictatorships). At some point there may be a serious deliberate escalation to end the war, and we need to be prepared and ready to step up deterrence against this, or to respond rationally in some other way. The supply of F16s by NATO members to Ukraine to bomb targets in Russia will allow Putin the excuse he feels he needs to escalate nuclear threats further, so we must prepare. This is not "defeatism", but preparing for freedom to prevail, to win the war, to deter escalation, and to survive.



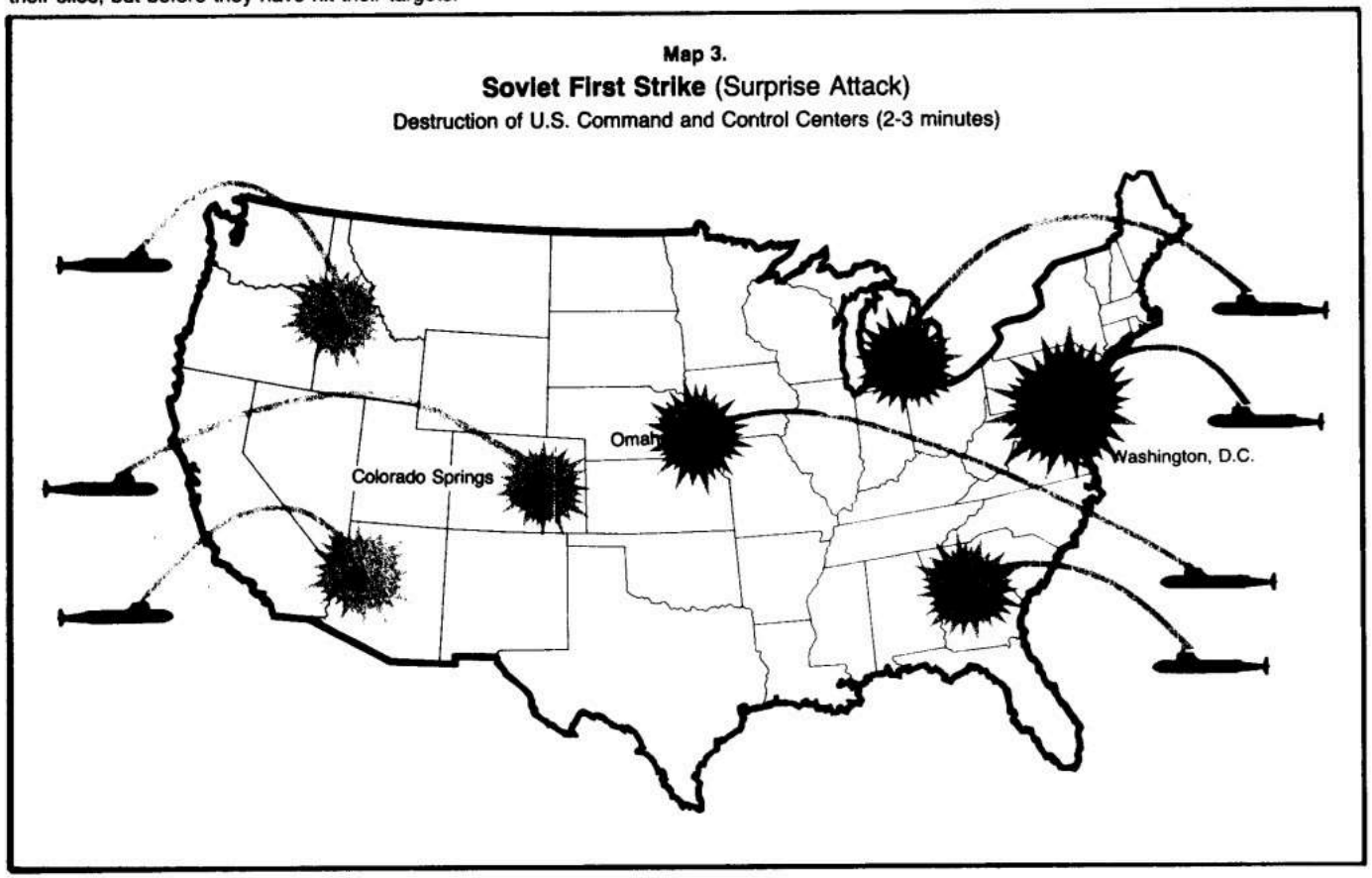
https://x.com/Gerashchenko_en/status/1797988759369318520
A little like Hitler's claim that one kick and Russia will "collapse like a rotten old barn door". Maybe, maybe not. Underestimating the enemy led to a failure of credible deterrence & two world wars.



After the Cold War, a unipolar world was proposed. This is 'one center of power, one center of decision, the world of one master, one sovereign.' A unipolar world has nothing to do with democracy and is destructive for everyone who is within this system. This model is not only unacceptable, but also is impossible, since it is not and cannot be based on the moral and ethical basis of modern civilization.
– Vladimir Putin, 02/10/2007

ABOVE: Example of a possible Russian 1985 1st Cold War SLBM first strike plan. The initial use of Russian SLBM launched nuclear missiles from off-coast against command and control centres (i.e. nuclear explosions to destroy warning satellite communications centres by radiation on satellites as well as EMP against ground targets, rather than missiles launched from Russia against cities, as assumed by 100% of the Cold War left-wing propaganda) is allegedly a Russian "fog of war" strategy. Such a "demonstration strike" is aimed essentially at causing confusion about what is going on, who is responsible - it is not quick or easy to finger-print high altitude bursts fired by SLBM's from submerged submarines to a particular country because you don't get fallout samples to identify isotopic plutonium composition. Russia could immediately deny the attack (implying, probably to the applause of the left-wingers that this was some kind of American

Maps 3, 4, and 5 show the sequence of Soviet actions in the first 20 minutes of a "pre-emptive strike," after Soviet ICBMs have been fired from their silos, but before they have hit their targets.



SOURCE: "GLOBAL SHOWDOWN: THE RUSSIAN IMPERIAL WAR PLAN FOR 1988", https://www.cia.gov/readingroom/docs/CIA-RDP90-00845R000100310004-9.pdf

training exercise or computer based nuclear weapons "accident", similar to those depicted in numerous anti-nuclear Cold War propaganda films). Thinly-veiled ultimatums and blackmail follow. America would not lose its population or even key cities in such a first strike (contrary to left-wing propaganda fiction), as with Pearl Harbor in 1941; it would lose its complacency and its sense of security through isolationism, and would either be forced into a humiliating defeat or a major war.

Before 1941, many warned of the risks but were dismissed on the basis that Japan was a smaller country with a smaller economy than the USA and war was therefore absurd (similar to the way Churchill's warnings about European dictators were dismissed by "arms-race opposing pacifists" not only in the 1930s, but even before WWI; for example Professor Cyril Joad documents in the 1939 book "Why War?" his first hand witnessing of Winston Churchill's pre-WWI warning and call for an arms-race to deter that war, as dismissed by the sneering Norman Angell who claimed an arms race would cause a war rather than avert one by bankrupting the terrorist state). It is vital to note that there is an immense pressure against warnings of Russian nuclear superiority even today, most of it contradictory. E.g. the left wing and Russian-biased "experts" whose voices are the only ones reported in the Western media (*traditionally led by "Scientific American" and "Bulletin of the Atomic Scientists"*), simultaneously claim Russia imposes such a terrible SLBM and ICBM nuclear threat that we must desperately disarm now, while also claiming that Russian tactical nuclear weapons probably won't work so aren't a threat that needs to be credibly deterred! This only makes sense as Russian siding propaganda. In similar vein, Teller-critic Hans Bethe also used to falsely "dismiss" Russian nuclear superiority by claiming (with quotes from Brezhnev about the peaceful intentions of Russia) that Russian delivery systems are "less accurate" than Western missiles (as if accuracy has anything to do with high altitude EMP strikes, where the effects cover huge areas, or large city targets. Such claims would then by repeatedly endlessly in the Western media by Russian biased "journalists" or agents of influence, and any attempt to point out the propaganda (i.e. he real world asymmetry: Russia uses cheap countervalue targetting on folk that don't have civil defense, whereas we need costly, accurate counterforce targetting because Russia has civil defense shelters that we don't have) became a "Reds under beds" argument, implying that the truth is dangerous to "peaceful coexistence"!

"Free peoples ... will make war only when driven to it by tyrants. ... there have been no wars between well-established democracies. ... the probability ... that the absence of wars between well-established democracies is a mere accident [is] less than one chance in a thousand. ... there have been more than enough to provide robust statistics ... When toleration of dissent has persisted for three years, but not until then, we can call a new republic 'well established.' ... Time and again we observe authoritarian leaders ... using coercion rather than seeking mutual accommodation ... Republican behaviour ... in quite a few cases ... created an 'appeasement trap.' The republic tried to accommodate a tyrant as if he were a fellow republican; the tyrant concluded that he could safely make an aggressive response; eventually the republic replied furiously with war. The frequency of such errors on both sides is evidence that negotiating styles are not based strictly on sound reasoning." - Spencer Weart, Never at War: Why Democracies Will Not Fight One Another (Yale University Press)

The Top Secret American intelligency report NIE 11-3/8-74 "Soviet Forces for Intercontinental Conflict" warned on page 6: "the USSR has largely eliminated previous US quantitative advantages in strategic offensive forces." page 9 of the report estimated that the Russian's ICBM and SLBM launchers exceed the USAs 1,700 during 1970, while Russia's on-line missile throw weight had exceeded the USA's one thousand tons back in 1967! Because the USA had more long-range bombers which can carry high-yield bombs than Russia (bombers are more vulnerable to air defences so were not Russia's priority), it took a little longer for Russia to exceed the USA in equivalent megatons, but the 1976 Top Secret American report NIE 11-3/8-76 at page 17 shows that in 1974 Russia exceeded the 4,000 equivalent-megatons payload of USA missiles and aircraft (with less vulnerability for Russia, since most of Russia's nuclear weapons were on missiles not in SAM-vulnerable aircraft), amd by 1976 Russia could deliver 7,000 tons of payload by missiles compared to just 4,000 tons on the USA side. These reports were kept secret for decades to protect the intelligence sources, but they were based on hard evidence. For example, in August 1974 the Hughes Aircraft Company used a specially designed ship (Glomar Explorer, 618 feet long, developed under a secret CIA contract) to recover nuclear weapons and their secret manuals from a Russian submarine which sank in 16,000 feet of water, while in 1976 America was able to take apart the electronics systems in a state-of-the-art Russian MIG-25 fighter which was flown to Japan by defector Viktor Belenko, discovering that it used exclusively EMP-hard miniature vacuum tubes with no EMP-vulnerable solid state components.

~~Secret~~
SOV 87-10035DX
July 1987

Warning Notice

Intelligence Sources or Methods Involved (WNINTEL)

National Security Information

Unauthorized Disclosure Subject to Criminal Sanctions

The Soviet Defense Industry Coping With the Military-Technological Challenge

The USSR probably will produce and deploy larger numbers of less capable weapons than the United States when doing so compensates for technological shortcomings or is a more cost effective way to meet military requirements. Moreover, the Soviets have often succeeded in translating technological achievements into weapon systems more rapidly than the West does. Thus, the technological levels of deployed Soviet and Western systems are more comparable than are the general levels of technology.

Russian 1st Cold War militarism compared to USA in Secret classified report

SOURCE: https://www.cia.gov/readingroom/docs/DOC_0000499526.pdf

Table 2
US and Estimated Soviet Production of Major Weapon Systems, 1974-84

System	US	USSR
ICBMs and SLBMs	980	3,400
Intermediate- and medium-range ballistic missiles	116	735
Surface-to-air missiles	24,000	130,000
Long- and intermediate-range bombers	6	340
Fighters	5,600	11,700
Helicopters	3,000	10,000
Submarines	40	121
Major surface combatants	90	110
Tanks	8,795	31,500
Artillery	5,250	30,000

There are four ways of dealing with aggressors: conquest (fight them), intimidation (deter them), fortification (shelter against their attacks; historically used as castles, walled cities and even walled countries in the case of China's 1,100 mile long Great Wall and Hadrian's Wall, while the USA has used the Pacific and Atlantic as successful moats against invasion, at least since Britain invaded Washington D.C. back in 1812), and friendship (which if you are too weak to fight, means appeasing them, as Chamberlain shook hands with Hitler for worthless peace promises). These are not mutually exclusive: you can use combinations. If you are very strong in offensive capability and also have walls to protect you while your back is turned, you can - as Teddy Roosevelt put it (quoting a West African proverb): "Speak softly and carry a big stick." But if you are weak, speaking softly makes you a target, vulnerable to coercion. This is why we don't send troops directly to Ukraine. When elected in 1960, Kennedy introduced "flexible response" to replace Dulles' "massive retaliation", by addressing the need to deter large provocations without being forced to decide between the unwelcome options of "surrender or all-out nuclear war" (Herman Kahn called this flexible response "Type 2 Deterrence"). This was eroded by both Russian civil defense and their emerging superiority in the 1970s: a real missiles and bombers gap emerged in 1972 when the USSR reached and then exceeded the 2,200 of the USA, while in 1974 the USSR achieve parity at 3,500 equivalent megatons (then exceeded the USA), and finally today Russia has over 2,000 dedicated clean enhanced neutron tactical nuclear weapons and we have none (except low-neutron output B61 multipurpose bombs). (Robert Jastrow's 1985 book *How to make nuclear Weapons obsolete* was the first to have graphs showing the downward trend in nuclear weapon yields created by the development of miniaturized MIRV warheads for missiles and tactical weapons: he shows that the average size of US warheads fell from 3 megatons in 1960 to 200 kilotons in 1980, and from a total of 12,000 megatons in 1960 to 3,000 megatons in 1980.)

The term "equivalent megatons" roughly takes account of the fact that the areas of cratering, blast and radiation damage scale not linearly with energy but as something like the 2/3 power of energy release; but note that close-in cratering scales as a significantly smaller power of energy than 2/3, while blast wind drag displacement of jeeps in open desert scales as a larger power of energy than 2/3. Comparisons of equivalent megatonnage shows, for example, that WWII's 2 megatons of TNT in the form of about 20,000,000 separate conventional 100 kg (0.1 ton) explosives is equivalent to 20,000,000 x $(10^{-7})^{2/3}$ = 431 separate 1 megaton explosions! The point is, nuclear weapons are *not* of a different order of magnitude to conventional warfare, because: (1) devastated areas don't scale in proportion to energy release, (2) the number of nuclear weapons is very much smaller than the number of conventional bombs dropped in conventional war, (3)

Approved For Release 2008/05/14 : CIA-RDP83M00914R002100120069-5

PROJECT TRUTH

Soviet Propaganda Alert

No. 1 **October 15, 1981**

ERW = neutron bomb (enhanced radiation warhead W79)

Anti-ERW propaganda dealing with the European context has not been decreased, but perhaps an attempt is being made to broaden the appeal of the Soviet campaign and make everyone feel more threatened by ERW and thus inclined to protest against it.

There has also been a shift of emphasis away from the theme of "the neutron weapon as an offensive weapon for clearing the way for invading troops." Stress is increasingly being placed on the argument that radiation contamination hazard from the weapon is much longer lasting and more intense than U.S. officials contend. If the Soviets want to play up the latter theme (as they evidently do), they cannot simultaneously charge that the weapon could be used to quickly clear the way for troops to move into or through an area.

SOURCE: https://www.cia.gov/readingroom/docs/CIA-RDP83M00914R002100120069-5.pdf

because of radiation effects like neutrons and intense EMP, it is possible to eliminate physical destruction by nuclear weapons by a combination of weapon design (e.g. very clean bombs like 99.9% fusion Dominic-Housatonic, or 95% fusion Redwing-Navajo) and burst altitude or depth for hard targets, and create a weapon that deters invasions credibly (without lying local fallout radiation hazards), something none of the biased "pacifist disarmament" lobbies (which attract Russian support) tell you, and (4) people at collateral damage distances have time to take cover from radiation and flying glass, blast winds, etc from nuclear explosions (which they don't in Ukraine and Gaza where similar blast pressures arrive more rapidly from smaller conventional explosions). There's a big problem with propaganda here.

(These calculations, showing that even if strategic bombing had worked in WWII - *and the US Strategic Bombing Survey concluded it failed, thus the early Cold War effort to develop and test tactical nuclear weapons and train for tactical nuclear war in Nevada field exercises* - you need over 400 megaton weapons to give the equivalent of WWII city destruction in Europe and Japan, are often inverted by anti-nuclear bigots to try to obfuscate the truth. What we're driving at is that nuclear weapons give you the ability to DETER the invasions that set off such wars, regardless of whether they escalate from poison gas - as feared in the 20s and 30s thus appeasement and WWII - or nuclear. Escalation was debunked in WWII where the only use of poison gases were in "peaceful" gas chambers, not dropped on cities. Rather than justifying appeasement, the "peaceful" massacre of millions in gas chambers justified war. But evil could and should have been deterred. The "anti-war" propagandarists like Lord Noel-Baker and pals who guaranteed immediate gas knockout blows in the 30s if we didn't appease evil dictators were never held to account and properly debunked by historians after the war, so they converted from gas liars to nuclear liars in the Cold War and went on winning "peace" prices for their lies, which multiplied up over the years, to keep getting news media headlines and Nobel Peace Prizes for starting and sustaining unnecessary wars and massacres by dictators. There's also a military side to this, with Field Marshall's Lord Mountbatten, Lord Carver and War Office scientific adviser Lord Zuckerman in the Cold War arguing for UK nuclear disarmament and a re-introduction of conscription instead. These guys were not pacifist CND thugs who wanted Moscow to rule the world, but they were quoted by them attacking the deterrent, but not of course quoting them calling for conscription instead. The abolishment of UK conscription for national service announced in 1960 was due to the H-bomb, and was a political money-saving plot by Macmillan. If we disarmed our nuclear deterrent and spend the money on conscription plus underground shelters, we might well be able to resist Russia as Ukraine does, until we run out of ammunition etc. *However, the cheapest and most credible deterrent is tactical nuclear weapons to prevent the concentration of aggressive force by terrorist states.*.)

Britain was initially in a better position with regards to civil defense than the USA, because in WWII Britain had built sufficient shelters (of various types, but all tested against blast intense enough to demolish brick houses, and later also tested them at various nuclear weapon trials in Monte Bello and Maralinga, Australia) and respirators for the entire civilian population. However, Britain also tried to keep the proof testing data secret from Russia (which tested their own shelters at their own nuclear tests anyway) and this meant *it appeared* that civil defense advice was unproved and would not work, an illusion exploited especially for communist propaganda in the UK via CND. To give just one example, CND and most of the UK media still rely on Duncan Campbell's pseudo-journalism book *War Plan UK* since it is based entirely on fake news about UK civil defense, nuclear weapons, Hiroshima, fallout, blast, etc. He takes for granted that - just because the UK Government kept the facts secret - the facts don't exist, and to him any use of nuclear weapons which spread any radioactivity whatsoever will make life totally impossible: "What matters 'freedom' or 'a way of life' in a radioactive wasteland?" (Quote from D. Campbell, *War Plan UK*, Paladin Books, May 1983, p387.) **The problem here is the well known fallout decay rate; Trinity nuclear test ground zero was reported by Glasstone (Effects of Atomic**

Weapons, 1950) to be at 8,000 R/hr at 1 hour after burst, yet just 57 days later, on September 11, 1945, General Groves, Robert Oppenheimer, and a large group of journalists safely visited it and took their time inspecting the surviving tower legs, when the gamma dose rate was down to little more than 1 R/hr! So fission products decay fast: 1,000 R/hr at 1 hour decays to 100 at 7 hours, 10 at 2 days, and just 1 at 2 weeks. So the "radioactive wasteland" is just as much a myth as any other nuclear "doomsday" fictional headline in the media. Nuclear weapons effects have always been fake news in the mainstream media: editors have always regarded facts as "boring copy". Higher yield tests showed that even the ground zero crater "hot spots" were generally lower, due to dispersal by the larger mushroom cloud. If you're far downwind, you can simply walk cross-wind, or prepare an improvised shelter while the dust is blowing. But point any such errors out to fanatical bigots and they will just keep making up more nonsense.

Duncan Campbell's *War Plan UK* relies on the contradiction of claiming that the deliberately exaggerated UK Government worst-case civil defense "exercises" for training purposes are "realistic scenarios" (e.g. 1975 Inside Right, 1978 Scrum Half, 1980 Square Leg, 1982 Hard Rock planning), while simultaneously claiming the very opposite about reliable UK Government nuclear effects and sheltering effectiveness data, *and hoping nobody would spot his contradictory tactics.* He quotes extensively from these lurid worst-case scenario UK civil defense exercises ,as if they are factually defensible rather than imaginary fiction to put planners under the maximum possible stress (standard UK military policy of “Train hard to fight easy”), while ignoring the far more likely limited nuclear uses scenario of Sir John Hackett's *Third World War*. His real worry is the 1977 UK Government *Training Manual for Scientific Advisers* which *War Plan UK* quotes on p14: "a potential threat to the security of the United Kingdom arising from acts of sabotage by enemy agents, possibly assisted by dissident groups. ... Their aim would be to weaken the national will and ability to fight. ... Their significance should not be underestimated." On the next page, *War Plan UK* quotes J. B. S. Haldane's 1938 book *Air Raid Precautions (ARP)* on the terrible destruction Haldane witnessed on unprotected people in the Spanish civil war, without even mentioning that Haldane's point is pro-civil defense, pro-shelters, and anti-appeasement of dictatorship, the exact opposite of *War Plan UK* which wants Russia to run the world. On page 124 *War Plan UK* the false assertion is made that USA nuclear casualty data is "widely accepted" and true (declassified Hiroshima casaulty data for people in modern concrete buildings proves it to be lies) while the correct UK nuclear casualty data is "inaccurate", and on page 126, Duncan Campbell simply lies that the UK Government's *Domestic Nuclear Shelters- Technical Guidance* **"ended up offering the public a selection of shelters half of which were invented in the Blitz ... None of the designs was ever tested."** In fact, Frank Pavry (who studied similar shelters surviving near ground zero at Hiroshima and Nagasaki in 1945 with the British Mission to Japan_ and George R. Stanbury tested 15 Anderson shelters at the first UK nuclear explosion, Operation Hurricane in 1952, together with concrete structures, and many other improvised trench and earth-covered shelters were nuclear tested by USA and UK at trials in 1955, 1956, 1957, and 1958, and later at simulated nuclear explosions by Cresson Kearny of Oak Ridge National Laboratory in the USA, having also earlier been exposed to early Russian nuclear tests (scroll down to see the evidence of this). Improved versions of war tested and nuclear weapons tested shelters! So *war Plan UK* makes no effort whatsoever to dig up the facts, and instead falsely claims the exact opposite of the plain unvarnished truth! *War Plan UK* shows its hypocrisy on page 383 in enthusiastically praising Russian civil defense:

"Training in elementary civil defence is given to everyone, at school, in industry or collective farms. A basic handbook of precautionary measures, *Everybody must know this!*, is the Russian *Protect and Survive*. The national civil defence corps is extensive, and is organized along military lines. Over 200,000 civil defence troops would be mobilized for rescue work in war. There are said to be extensive, dispersed and 'untouchable' food stockpiles; industrial workers are issued with kits of personal protection apparatus, said to include nerve gas counteragents such as atropine. Fallout and blast shelters are provided in the cities and in industrial complexes, and new buildings have been required to have shelters since the 1950s. ... They suggest that less than 10% - even as little as 5% - of the Soviet population would die in a major attack. [*Less than Russia's loss of 12% of its population in WWII.*]"


Trinity nuclear test ground zero region (remains of 100 ft bomb tower), 11 September 1945: 1.4 R/hr.

LETTERS

Soviet Civil Defense

Deborah Shapley's article "Soviet civil defense: Insiders argue whether strategic balance is shaken" (News and Comment, 10 Dec. 1976, p. 1141) provides information that should prove useful to scientists and others concerned with the strategic significance of realistic civil defense preparations.

Her description of the Soviet civil defense installations is quite comprehensive. The only relevant point that we found lacking is the instruction of the people in civil defense measures. Every schoolchild has 3 years' instruction in the effects of nuclear weapons and in the civil defense measures to minimize them. A total of about 135 hours is devoted to the subject. There is similar instruction in factories, and hundreds of thousands of handbooks on civil defense are published and distributed.

Another factor, mentioned by Shapley but in our view underemphasized, is the plan for evacuation. If this is carried out and followed by a set of demands resulting in a confrontation, the bargaining position of our country would be miserable. The Soviet Union could threaten to destroy half of the U.S. population; we could destroy only a small fraction of theirs. The Soviet losses would be well below those suffered in World War II. Such a threat, "nuclear blackmail," is the danger many of us fear most. The first of the above numbers is confirmed in the published part of the *Ponast II* study (*1*). Soviet losses are estimated to be between 2¾ and 4½ percent in their civil defense handbooks, but some of the U.S. estimates, though still quite low, are considerably higher. The estimate of one of us (E.P.W.) agrees with the Soviet. Soviet military and civilian leaders have always rejected the concepts of "mutual assured destruction," a strategic theory based on the United States and the Soviet Union leaving their populations vulnerable. One of the Soviet responses to U.S. threats, first of "massive retaliation" and then of "assured destruction," is their comprehensive preparations to survive even an all-out war.

Let us observe, finally, that we cannot quite understand Panofsky's and Garwin's fear, quoted in the article, that a U.S. civil defense effort would alarm the Soviet leaders and would be destabilizing. If the Soviet civil defense does not alarm them and is not destabilizing, why would our emulation of some of these measures be alarming and destabilizing? Did Khrushchev not say, "Don't be afraid. If I offer my embrace, you will not refuse it"?

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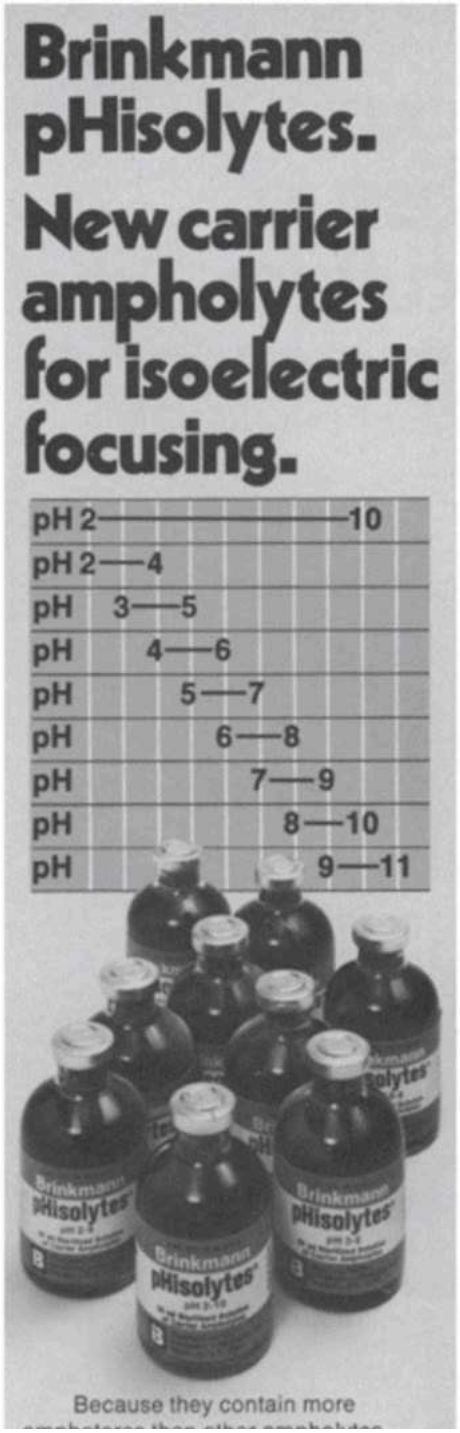
EUGENE P. WIGNER
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References

1. *Ponast II* (briefing prepared by the Defense Civil Preparedness Agency, Washington, D.C., 1975; based on a classified interagency study sponsored by the Joint Chiefs of Staff, Studies Analysis and Gaming Agency, Washington, D.C., 1973).
2. V. I. Lenin, *Collected Works*, vol. 38, p. 359, as quoted in the comprehensive Soviet handbook *Civil Defense* (Publishing House for Higher Education, Moscow, ed. 2, 1974).

TVA's Record

I should like to compliment Deborah Shapley on her article (News and Comment, 19 Nov. 1976, p. 814) concerning the Tennessee Valley Authority (TVA).



viet estimate.

To discover the "motives behind Soviet population defense" one should read what Soviet leaders have clearly and repeatedly told their own people. One key to the understanding of these motives is Lenin's often quoted dictum: "The primary productive factor of all of humanity is the laboring man, the worker. If he survives, we can save everything and restore everything—but we shall perish if we are not able to save him" (*2*). Of course, if they can push us by threats into repeated concessions, just as Hitler pushed Czechoslovakia, there would be no need to rebuild their factories. The Soviets, like the majority of mankind, always have believed that a primary responsibility of any nation's government is making preparations to save the lives of its citizens if war oc-

The case against TVA is convincingly delineated from the early days when it "arrived" to tame the rampaging rivers, advise the farmers on better agricultural methods, and, yes, as a by-project, to produce the electrical energy hitherto absent in the Tennessee Valley.

Over the course of its development, TVA has performed a comprehensive service to the citizens of this poverty-shackled valley that private utility companies were reluctant to offer. Utility planners worth their keep could not survive for long by suggesting that large capital expenditures be directed toward a rural, backward region where the median income was less than half that of the rest of the country. However, Congress accepted the socioeconomic challenge and created TVA. Yet because it is the largest utility in the nation, TVA de-

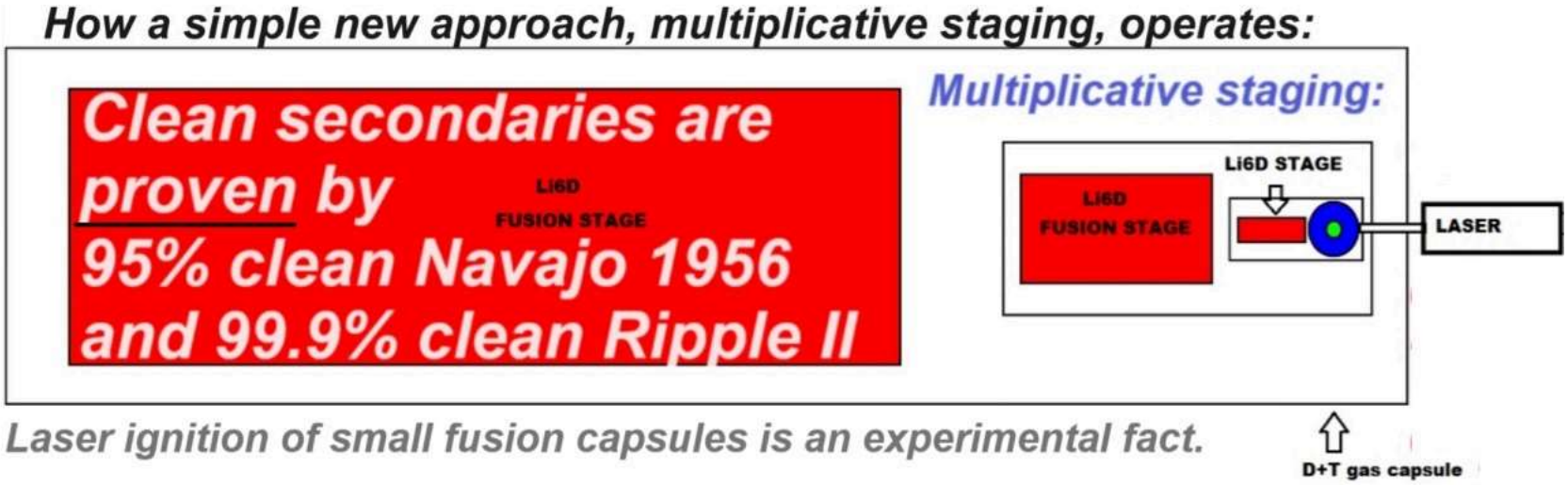
amphoteres than other ampholytes, Brinkmann pHisolytes provide a wider general pH range, from pH 2 to 10. pHisolytes are also available in eight individual pH ranges, each with a span of 2 pH units, from pH 2-4 to pH 9-11.

pHisolytes are composed of amphoteres synthesized from aliphatic polyamines with primary, secondary and tertiary amines and guanidine groups. They range in molecular weight from 400 to 700 and are easily separated from proteins by gel filtration techniques. pHisolytes come in sterile vials of 25 ml; each batch is tested for buffering capacity and adsorption .

For literature, just write: Brinkmann Instruments, Cantiague Rd, Westbury, N.Y. 11590. In Canada: 50 Galaxy Blvd., Rexdale (Toronto), Ont.

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'LLNL achieved fusion ignition for the first time on Dec. 5, 2022. The second time came on July 30, 2023, when in a controlled fusion experiment, the NIF laser delivered 2.05 MJ of energy to the target, resulting in 3.88 MJ of fusion energy output, the highest yield achieved to date. On Oct. 8, 2023, the NIF laser achieved fusion ignition for the third time with 1.9 MJ of laser energy resulting in 2.4 MJ of fusion energy yield. "We're on a steep performance curve," said Jean-Michel Di Nicola, co-program director for the NIF and Photon Science's Laser Science and Systems Engineering organization. "**Increasing laser energy can give us more margin against issues like imperfections in the fuel capsule or asymmetry in the fuel hot spot. Higher laser energy can help achieve a more stable implosion, resulting in higher yields." ... "The laser itself is capable of higher energy without fundamental changes to the laser," said NIF operations manager Bruno Van Wonterghem. "It's all about the control of the damage. Too much energy without proper protection, and your optics blow to pieces." ' -** https://lasers.llnl.gov/news/llnls-nif-delivers-record-laser-energy

NOTE: the "problem" very large lasers "required" to deliver ~2MJ (roughly 0.5 kg of TNT energy) to cause larger fusion explosions of 2mm diameter capsules of frozen D+T inside a 1 cm diameter energy reflecting hohlraum, and the "problem" of damage to the equipment caused by the explosions, is immaterial to clean nuclear deterrent development based on this technology, because in a clean nuclear weapon, whatever laser or other power ignition system is used only has to be fired once, so it needs to be less robust than the NIF lasers which are used repeatedly. Similarly, damage done to the system by the explosion is also immaterial for a clean nuclear weapon, in which the weapon is detonated once only! This is exactly the same point which finally occurred during a critical review of the first gun-type assembly nuclear weapon, in which the fact it would only ever be fired once (unlike a field artillery gun) enabled huge reductions in the size of the device, into a practical weapon, as described by General Leslie M. Groves on p163 of his 1962 book *Now it can be told: the story of the Manhattan Project:*

"Out of the Review Committee's work came one important technical contribution when Rose pointed out ... that the durability of the gun was quite immaterial to success, since it would be destroyed in the explosion anyway. Self-evident as this seemed once it was mentioned, it had not previously occurred to us. Now we could make drastic reductions in ... weight and size."

This principle also applies to weaponizing NIF clean fusion explosion technology. General Groves' book was reprinted in 1982 with a useful Introduction by Edward Teller on the nature of nuclear weapons history: "History in some ways resembles the relativity principle in science. What is observed depends on the observer. Only when the perspective of the observer is known, can proper corrections be made. ... The general ... very often managed to ignore complexity and arrive at a result which, if not ideal, at least worked. ... For Groves, the Manhattan project seemed a minor assignment, less significant than the construction of the Pentagon. He was deeply disappointed at being given the job of supervising the development of an atomic weapon, since it deprived him of combat duty. ... We must find ways to encourage mutual understanding and significant collaboration between those who defend their nation with their lives and those who can contribute the ideas to make that defense successful. Only by such cooperation can we hope that freedom will survive, that peace will be preserved."

General Groves similarly comments in Chapter 31, "A Final Word" of *Now it can be told:*

"No man can say what would have been the result if we had not taken the steps ... Yet, one thing seems certain - atomic energy would have been developed somewhere in the world ... I do not believe the United States ever would have undertaken it in time of peace. Most probably, the first developer would have been a power-hungry nation, which would then have dominated the world completely ... it is fortunate indeed for humanity that the initiative in this field was gained and kept by the United States. That we were successful was due entirely to the hard work and dedication of the more than 600,000 Americans who comprised and directly supported the Manhattan Project. ... we had the full backing of our government, combined with the nearly infinite potential of American science, engineering and industry, and an almost unlimited supply of people endowed with ingenuity and determination."

Update: **Lawrence Livermore National Laboratory's $3.5 billion National Ignition Facility, NIF, using ultraviolet wavelength laser beam pulses of 2MJ on to a 2mm diameter spherical beryllium shell of frozen D+T inside a 1 cm-long hollow gold cylinder "hohlraum" (which is heated to a temperature where it then re-radiates energy at much higher frequency, x-rays, on to the surface of the beryllium ablator of the central fusion capsule, which ablates causing it to recoil inward (as for the 1962 Ripple II nuclear weapon's secondary stage, the capsule is compressed efficiently, mimicking the isentropic compression mechanism of a miniature Ripple II clean nuclear weapon secondary stage), has now repeatedly achieved nuclear fusion explosions of over 3MJ, equivalent to nearly 1 kg of TNT explosive. According to a Time article (linked her) about fusion system designer Annie Kritcher, the recent breakthrough was in part due to using a ramping input energy waveform: "success that came thanks to tweaks including shifting more of the input energy to the later part of the laser shot"**, a feature that minimises the rise in entropy due to shock shock wave generation (which heats the capsule, causing it to expand and resist compression) and increases *isentropic* compression which was the **principle used by LLNL's J. H. Nuckolls to achieve the 99.9% clean Ripple II 9.96 megaton nuclear test success in Dominic-Housatonic on 30 October 1962. Nuckolls in 1972 published the equation for the idealized input power waveform required for isentropic, optimized compression of fusion fuel (*Nature,* v239, p139): $P \sim (1 - t)^{-1.875}$, where t is time in units of the transit time (the time taken for the shock to travel to the centre of the fusion capsule), and -1.875 a constant based on the specific heat of the ionized fuel (Nuckolls has provided the basic declassified principles, see extract linked here).** *To be clear, the energy reliably released by the 2mm diameter capsule of fusion fuel was roughly a 1 kg TNT explosion.* 80% of this is in the form of 14.1 MeV neutrons (ideal for fissioning lithium-7 in LiD to yield more tritium), and 20% is the kinetic energy of fused nuclei (which is quickly converted into x-rays radiation energy by collisions). Nuckolls' 9.96 megaton Housatonic (10 kt Kinglet primary and 9.95 Mt Ripple II 100% clean isentropically compressed secondary) of 1962 *proved that it is possible to use multiplicative staging whereby lower yield primary nuclear explosions trigger off a fusion stage 1,000 times more powerful than its initiator.* Another key factor, as shown on our g**graph linked here, is that you can use cheap natural LiD as fuel once you have a successful D+T reaction, because naturally abundant, cheap Li-7 more readily fissions to yield tritium with the 14.1 MeV neutrons from D+T fusion, than expensively enriched Li-6**, which is needed to make tritium in nuclear reactors where the fission neutron energy of around 1 MeV is too low to to fission Li-7. **It should also be noted that despite an openly published paper about Nuckolls' Ripple II success being stymied in 2021 by Jon Grams**, the subject is still being covered up/ignored by the anti-nuclear biased Western media! Grams article fails to contain the design details such as the isentropic power delivery curve etc from Nuckolls' declassified articles that we include in the latest blog post here. One problem regarding "data" causing continuing confusion about the Dominic-Housatonic 30 October 1962 Ripple II test at Christmas Island, is made clear in the DASA-1211 report's declassified summary of the sizes, weights and yields of those tests: Housatonic was Nuckolls' fourth and final isentropic test, with the nuclear system inserted into a heavy steel Mk36 drop case, making the overall size 57.2 inches in diameter, 147.9 long and 7,139.55 lb mass, i.e. 1.4 kt/lb or 3.0 kt/kg yield-to-mass ratio for 9.96 Mt yield, which is not impressive for that yield range until you consider (a) that it was 99.9% fusion and (b) the isentropic design required a heavy holhraum around the large Ripple II fusion secondary stage to confine x-rays for relatively long time during which a slowly rising pulse of x-rays were delivered from the primary to secondary via a very large areas of foam elsewhere in the weapon, to produce isentropic compression.

Additionally, the test was made in a hurry before an atmospheric teat ban treaty, and this rushed use of a standard air drop steel casing made the tested weapon much heavier than a properly weaponized Ripple II. The key point is that a 10 kt fission device set off a ~10 Mt fusion explosion, a very clean deterrent. **Applying this Ripple II 1,000-factor multiplicative staging figure directly to this technology for clean nuclear warheads, a 0.5 kg TNT D+T fusion capsule would set off a 0.5 ton TNT 2nd stage of LiD, which would then set off a 0.5 kt 3rd stage "neutron bomb", which could then be used to set off a 500 kt 4th stage or "strategic nuclear weapon".** In practice, this multiplication factor of 1,000 given by Ripple II in 1962 from 10 kt to 10 Mt may not be immediately achievable to get from ~1 kg TNT yield to 1 ton TNT, so a few more tiny stages may be needed for the lower yield. But there is every reason to forecast that with enough research, improvements will be possible and the device will become a reality. It is therefore now possible not just in "theory" or in principle, but with evidence obtained from practical experimentation, using suitable already-proved technical staging systems used in 1960s nuclear weapon tests successfully, to design 100% clean fusion nuclear warheads! Yes, the details have been worked out, yes the technology has been tested in piecemeal fashion. All that is now needed is a new, but quicker and cheaper, Star Wars program or Manhattan Project style effort to pull the components together. This will constitute a major leap forward in the credibility of the deterrence of aggressors.

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LA-575

February 16, 1950

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No. 1 of 100 copies, Series A

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REPORT OF CONFERENCE ON THE SUPER

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(all conferees and members of T-7)

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Per L. M. Redman (date) MAY 17 1951

By Bruce S. Kelly May 17 1951
(Signature of person making the change and date)

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FOREWORD

A conference was held at Los Alamos April 18, 19 and 20, 1946, to review work that has been done on the Super for completeness and accuracy and to make suggestions concerning further work that would be needed in this field if actual construction and test of the Super were planned. Basic theory and construction of the proposed design, discussed in report, LA-551, were presented in detail by Teller and members of Group T-7, and were then discussed in detail by the conferees. The ensuing discussions of the conferees, together with a brief description of the model, are summarized in the present report which has been compiled from parts written by several of the conferees. These parts were read by as many as possible of the other conferees prior to publication and, although it was not possible for all of the conferees to review the entire report in manuscript, it is believed that its contents are essentially the unanimous opinions of those attending the conference.

The general plan of the report is as follows:

Part I is a general discussion of thermo-nuclear reactions and their use in the Super Bomb.

Part II is a discussion of the proposed model and its principle of operation. In this connection it should be remembered that this model was chosen for ease and reliability of the theoretical calculations rather than for efficiency of use of expensive materials or engineering simplicity.

Part III contains criticisms, alternative arrangements and additional calculations discussed at the conference. Many possible alternatives have been considered in the past by members of Group T-7 and were discarded at the time of writing of report LA-551 in the interest of definiteness of the model, and only those alternatives are described here which were actually

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PART VI - CONCLUSIONS

On the basis of the discussion during the conference, the follo conclusions were drawn by the participants:

It is likely that a super-bomb can be constructed and will work.

Definite proof of this can hardly ever be expected and a final decision can be made only by a test of the completely assembled super-bomb. The main reason for doubt is

[redacted]

There is at pres no indication that any of the basic physical processes has been neglected nor is it considered likely that any additional basic process will need to be taken into consideration.

It was felt that a detailed calculation would have to be under-taken to learn to what extent the thermo-nuclear explosion will

[redacted]

While it seems that all relevant physical facts have been discussed, and while

[redacted]

, it was believed that a detaile calculation of this point would add to the strength of evidence for the feasibility of the super.

The detailed design submitted to the conference was judged on th whole workable. In a few points doubts have arisen concerning certain co ponents of this design. These doubts have been discussed above. In each case, it was seen that should the doubts prove well-founded, simple modifications of the design will render the model feasible.

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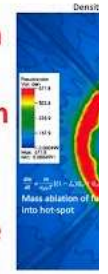
https://www.llnl.gov/article/50616/llnls-national-ignition-facility-delivers-record-laser-energy

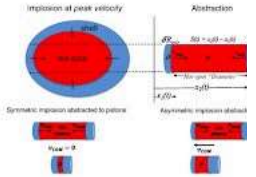
Charting the First Year of Ignition





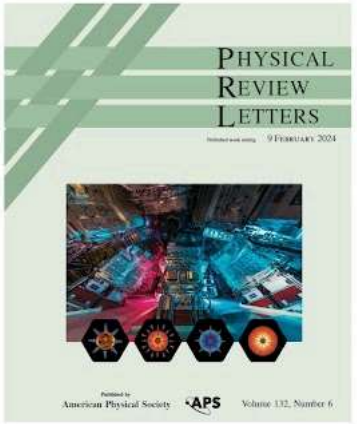
Above: Plasma implosion asymmetries in a NIF hohlraum: a plasma bubble (shown in red) upsets x-ray symmetry!



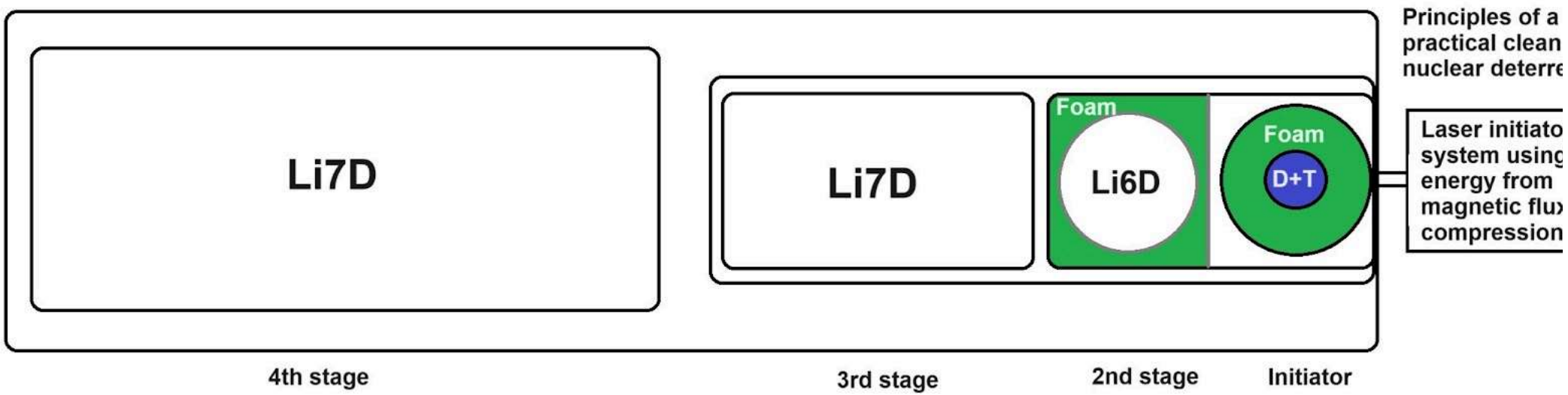


On Oct. 30, Lawrence Livermore National Laboratory (LLNL)'s National Ignition Facility (NIF) set a new record for laser energy, firing 2.2 megajoules (MJ) of energy for the first time on an ignition target. This experiment resulted in 3.4 MJ of fusion energy yield, achieving ignition and delivering the second-highest neutron yield ever achieved on NIF.

"Increasing laser energy can give us more margin against issues like imperfections in the fuel capsule or asymmetry in the fuel hot spot. Higher laser energy can help achieve a more stable implosion, resulting in higher yields."

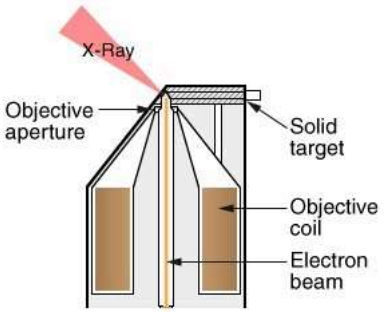


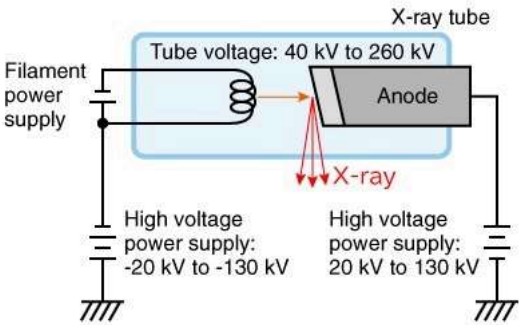
An implosion asymmetry at peak velocity abstracted into implosion of t pistons. Ablat plasma exerts MBar pressure within 10 ns, accelerating th pusher to over 100 km/s. Ablators are n made of plasti



Casings thicknesses needed to contain each "subsystem" scale as the cube-root of the yield of the subsystem concerned, keeping weight dow
Since 14.1 MeV neutrons are main source (80%) of the energy from each stage, casings absorb and convert some of that energy into x-rays for
the compression of Li6D and Li7D stages. The casings x-rays as a result of neutron heating, rather than solely acting as x-ray radiation mirrors

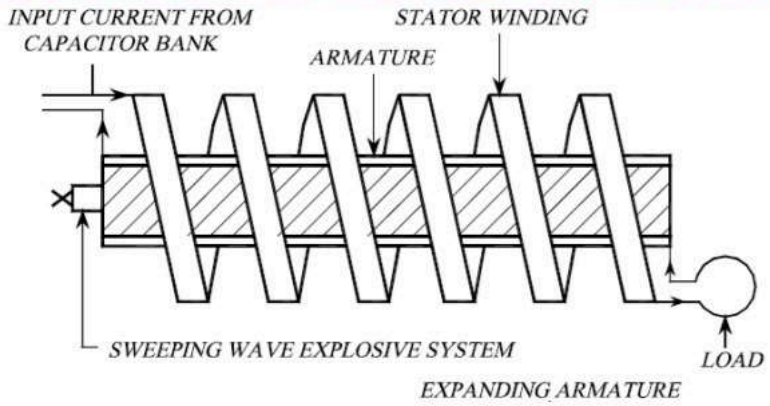
Press Conference: Secretary Granholm & DOE leaders Ann...

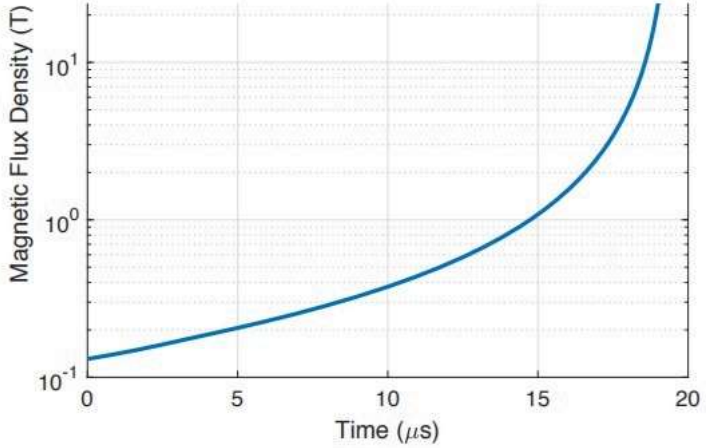




Placing flash x-ray sources in proximity to the D+T gas capsule's hohlraum is an alternative to using a laser beam from far away!

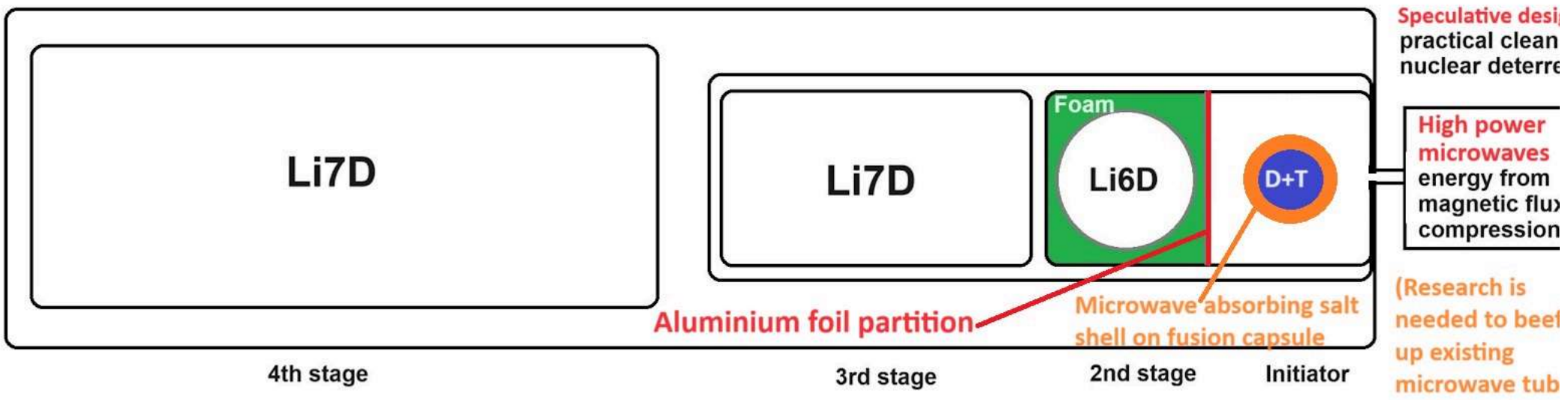
Credit: Nicholas Edward Klugman, MIT, 2020.





Compact explosive driven magnetic flux compression ramping current pulse source for ideally powering the flash x-ray tubes.

ABOVE: as predicted, the higher the input laser pulse for the D+T initiator of a clean multiplicatively-staged nuclear deterrent, the lower the effect of plasma instabilities and asymmetries and the greater the fusion burn. To get ignition (where the x-ray energy injected into the fusion hohlraum by the laser is less than the energy released in the D+T fusion burn) they have had to use about 2 MJ delivered in 10 ns or so, equivalent to 0.5 kg of TNT equivalent. But for deterrent use, why use such expensive, delicate lasers? Why not just use one-shot miniaturised x-ray tubes with megavolt electron acceleration, powered a suitably ramped pulse from a chemical explosion for magnetic flux compression current generation? At 10% efficiency, you need 0.5 x 10 = 5 kg of TNT! Even at 1% efficiency, 50 kg of TNT will do. Once the D+T gas capsule's hohlraum is well over 1 cm in size, to minimise the risk of imperfections that cause asymmetries, you don't any longer need focussed laser beams to enter tiny apertures. You might even be able to integrate many miniature flash x-ray tubes (each designed to burn out when firing one pulse of a MJ or so) into a special hohlraum. Humanity urgently needs a technological arms race akin to Reagan's Star Wars project, to deter the dictators from invasions and WWIII. In the conference video above, a question was asked about the real efficiency of the enormous repeat-pulse capable laser system's efficiency (not required for a nuclear weapon whose components only require the capability to be used once, unlike lab equipment): the answer is that 300 MJ was required by the lab lasers to fire a 2 MJ pulse into the D+T capsule's x-ray hohlraum, i.e. their lasers are only 0.7% efficient! So why bother? We know - from the practical use of incoherent fission primary stage x-rays to compress and ignite fusion capsules in nuclear weapons - that you simply don't need coherent photons from a laser for this purpose. The sole reason they are approaching the problem with lasers is that they began their lab experiments decades ago with microscopic sized fusion capsules and for those you need a tightly focussed beam to insert energy through a tiny hohlraum aperture. But now they are finally achieving success with much larger fusion capsules (to minimise instabilities that caused the early failures), it may be time to change direction. A whole array of false "no-go theorems" can and will be raised by ignorant charlatan "authorities" against any innovation; this is the nature of the political world. There is some interesting discussion of why clean bombs aren't in existence today, basically the idealized theory (which works fine for big H-bombs but ignores small-scale asymmetry problems which are important only at low ignition energy) understimated the input energy required for fusion ignition by a factor of 2000:

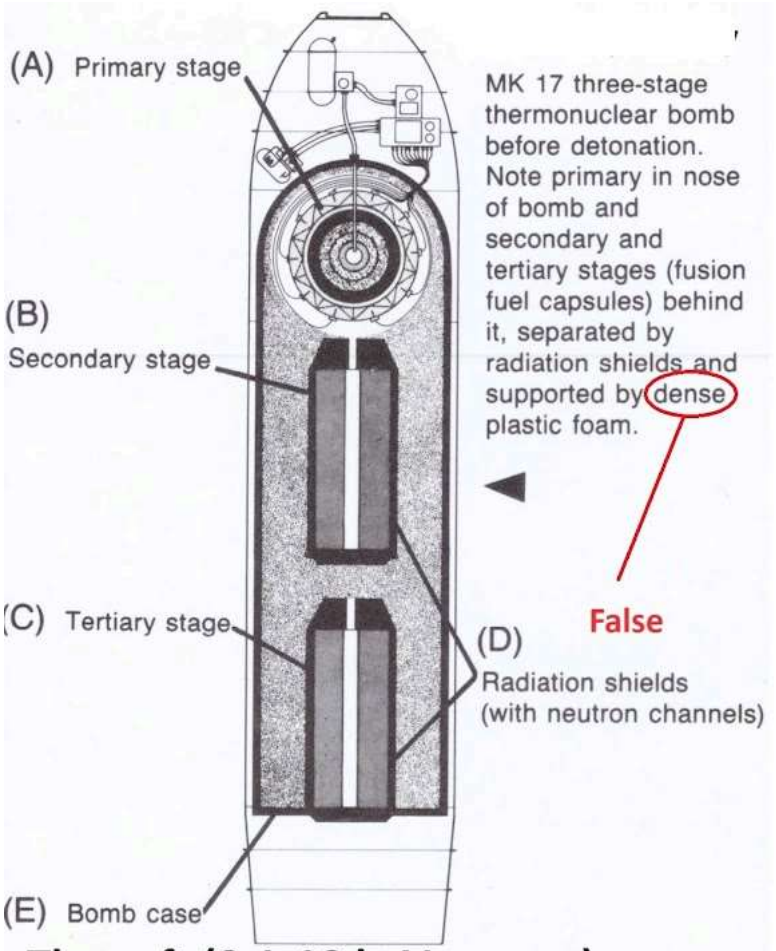


The early calculations on ICF (inertial-confinement fusion) by John Nuckolls in 1972 had estimated that ICF might be achieved with a driver energy as low as 1 kJ. ... In order to provide reliable experimental data on the minimum energy required for ignition, a series of secret experiments—known as Halite at Livermore and Centurion at Los Alamos—was carried out at the nuclear weapons test site in Nevada between 1978 and 1988. The experiments used small underground nuclear explosions to provide X-rays of sufficiently high intensity to implode ICF capsules, simulating the manner in which they would be compressed in a hohlraum. ... the Halite/Centurion results predicted values for the required laser energy in the range 20 to 100MJ—higher than the predictions ..." - Garry McCracken and Peter Stott, *Fusion*, Elsevier, 2nd ed., p149.

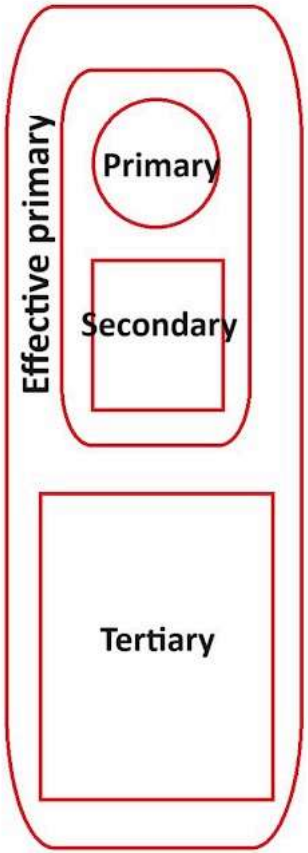
In the final diagram above, we illustrate an example of what could very well occur in the near future, just to really poke a stick into the wheels of "orthodoxy" in nuclear weapons design: **is it possible to just use a lot of (perhaps hardened for higher currents, perhaps no) pulsed current driven microwave tubes from kitchen microwave ovens, channelling their energy using waveguides (simply metal tubes, i.e. electrical Faraday cages, which reflect and thus contain microwaves) into the hohlraum, and make the pusher of dipole molecules (like common salt, NaCl) which is a good absorber of microwaves (as everybody knows from cooking in microwave ovens)? It would be extremely dangerous, not to mention embarrassing, if this worked, but nobody had done any detailed research into the possibility due to groupthink orthodoxy and conventional boxed in thinking! Remember, the D+T capsule just needs extreme compression and this can be done by any means that works. Microwave technology is now very well-established. It's no good trying to keep anything of this sort "secret" (either officially or unofficially) since as history shows, dictatorships are the places where "crackpot"-sounding ideas (such as douple-primary Project "49" Russian thermonuclear weapon designs, Russian Sputnik satellites, Russian Novichok nerve agent, Nazi V1 cruise missiles, Nazi V2 IRBM's, etc.) can be given priority by loony dictators. We have to avoid, as Edward Teller put it (in his secret commentary debunking Bethe's false history of the H-bomb, written AFTER the Teller-Ulam breakthrough), "too-narrow" thinking (which Teller said was still in force on H-bomb design even then). Fashionable hardened orthodoxy is the soft underbelly of "democracy" (a dictatorship by the majority, which is always too focussed on fashionable ideas and dismissive of alternative approaches in science and technology). Dictatorships (minorities against majorities) have repeatedly demonstrated a lack of concern for the fake "no-go theorems" used by Western anti-nuclear "authorities" to ban anything but fashionable groupthink science.**



ABOVE: 1944-dated film of the Head of the British Mission to Los Alamos, neutron discoverer James Chadwick, explaining in detail to American how hard it was for him to discover the neutron, taking 10 years on a shoe-string budget, mostly due to having insufficiently strong sources of alpha particles to bombard nuclei in a cloud chamber! The idea of the neutron came from his colleague Rutherford. Chadwick reads his explanation while rapidly rotating a pencil in his right hand, perhaps indicating the stress he was under in 1944. In 1946, when British participation at Los Alamos ended, Chadwick wrote the first detailed secret British report on the design of a three-stage hydrogen bomb, another project that took over a decade. In the diagram below, it appears that the American Mk17 only had a single secondary stage like the similar yield 1952 Mike design. The point here is that popular misunderstanding of the simple mechanism of x-ray energy transfer for higher yield weapons may be creating a dogmatic attitude even in secret nuclear weaponeer design labs, where orthodoxy is followed too rigorously. The Russians (see quotes on the latest blog post here) state they used two entire two-stage thermonuclear weapons with a combined yield of 1 megaton to set off their 50 megaton test in 1961. If true, you can indeed use two-stage hydrogen bombs as an "effective primary" to set off another secondary stage, of much higher yield. **Can this be reversed in the sense of scaling it down so you have several bombs-within-bombs, all triggered by a really tiny first stage? In other words, can it be applied to neutron bomb design?**



C. Hansen's 1988 US Nuclear Weapons book illustration of a Castle-Romeo tested Mk17 (7.52m long, 1.56m diameter, 19 metric tons mass, 11 megatons, un-enriched LiD). It is in error because "dense plastic foam" would stop x-ray channelling and prevent it working. Low density foams are used for two purposes: (1) to slow, disperse and diffuse x-rays energy into shadows around the far end of spherical secondaries for isotropic compression (not needed for axial compression of cylinders), and (2) in clean secondary weapons - including cylindrical secondaries - they delay x-ray compression until primary stage neutrons fission lithium into tritium in the secondary PRIOR to its compression (95% clean Redwing-Navajo had no fissile spark plug in the secondary stage to do this). In a vacuum a 10ns x-ray pulse is R = ct = 3 metres long.



To get a very large nuclear explosion using a very small primar fission stage, you need to confine the x rays to ignite one stage at time, instead of dispersing them to low energy densi in a big space

The soft (0.1-10 keV energy) x-rays are easily attenuated and so simply can't be channelled through dense plastic foam; but very low density (approximately air density) foams are used in some designs.

ABOVE: **16 kt at 600m altitude nuclear explosion on a city, Hiroshima ground zero (in foreground) showing modern concrete buildings surviving nearby (unlike the wooden ones that mostly burned at the peak of the firestorm 2-3 hours after survivors had evacuated), in which people were shielded from most of the radiation and blast winds, as they were in simple shelters.**

The 1946 Report of the British Mission to Japan, *The Effects of the Atomic Bombs at Hiroshima and Nagasaki,* compiled by a team of 16 in Hiroshima and Nagasaki during November 1945, which included 10 UK Home Office civil defence experts (W. N. Thomas, J. Bronowski, D. C. Burn, J. B. Hawker, H. Elder, P. A. Badland, R. W. Bevan, F. H. Pavry, F. Walley, O. C. Young, S. Parthasarathy, A. D. Evans, O. M. Solandt, A. E. Dark, R. G. Whitehead and F. G. S. Mitchell) found: "Para. 26. Reinforced concrete buildings of very heavy construction in Hiroshima, even when within 200 yards of the centre of damage, remained structurally undamaged. ... Para 28. These observations make it plain that reinforced concrete framed buildings can resist a bomb of the same power detonated at these heights, without employing fantastic thicknesses of concrete. ... Para 40. The provision of air raid shelters throughout Japan was much below European standards. ... in Hiroshima ... they were semi-sunk, about 20 feet long, had wooden frames, and 1.5-2 feet of earth cover. ... Exploding so high above them, the bomb damaged none of these shelters. ... Para 42. These observations show that the standard British shelters would have performed well against a bomb of the same power exploded at such a height. Anderson shelters, properly erected and covered, would have given protection. Brick or concrete surfac shelters with adequate reinforcement would have remained safe from collapse. The Morrison shelter is designed only to protect its occupants from the refuge load of a house, and this it would have done. Deep shelters such as the refuge provided by the London Underground would have given complete protection. ... Para 60. Buildings and walls gave complete protection from flashburn."

Glasstone and Dolan's 1977 Effects of Nuclear Weapons in Table 12.21 on p547 flunks making this point by giving data *without citing its source to make it credible to readers*: it correlated 14% mortality (106 killed out of 775 people in Hiroshima's Telegraph Office) to "moderate damage" at 500m in Hiroshima (the uncited "secret" source was NP-3041, Table 12, applying to unwarned people inside modern concrete buildings).



Hiroshima ground zero (burned out bus in the foreground). Glasstone and Dolan 1977 state (Table 12.17 on p546) that 50% survival outdoors was at 1.3 miles compared to 0.12 miles for concrete buildings. The area of casualties is proportional to the square of the radius, so that being in a modern city centre concrete building reduces outdoor mortality by a factor of 1.3/0.12 squared, or 120.

Glasstone and Dolan show that wooden houses (not found in modern city centres anymore) offer poor radiation shielding, are flammable, and can be destroyed at approximately the ~1.3 miles or 5 psi range for outdoor 50% survival. But in Table 5.160 they show that a simple reinforced concrete arch 8 inches thick with a span of 16 feet and 4 feet of earth cover requires 220-280 psi peak overpressure for collapse.

This nuclear weapons effects data debunks populist media lying claims that there is excessive expense involved in civil defense. The situation is identical to 1930s mass media liars (Angell, Joad, Noel-Baker, et al.) who were awarded "Peace Prizes" for causing WWII by saturation propaganda in the UK mass media claiming gas masks and simple cheap shelters are a deception by war mongering Churchill.

"A weapon whose basic design would seem to provide the essence of what Western morality has long sought for waging classical battlefield warfare - to keep the war to a struggle between the warriors and exclude the non-combatants and their physical assets - has been violently denounced, precisely because it achieves this objective." - Samuel T. Cohen (quoted in Chapman Pincher, *The secret offensive*, Sidgwick and Jackson, London, 1985, Chapter 15: The Neutron Bomb Offensive, p210).

The reality is, dedicated enhanced neutron tactical nuclear weapons were used to credibly deter the concentrations of force required for triggering of WWIII during the 1st Cold War, and the thugs who support Russian propaganda for Western disarmament got rid of them on our side, but not on the Russian side. Air burst neutron bombs or even as subsurface earth penetrators of relatively low fission yield (where the soil converts energy that would otherwise escape as blast and radiation into ground shock for destroying buried tunnels - new research on cratering shows that a 20 kt subsurface burst creates similar effects on buried hard targets as a 1 Mt surface burst), they cause none of the vast collateral damage to civilians that we see now in Ukraine and Gaza, or that we saw in WWII and the wars in Korea and Vietnam. *This is 100% contrary to CND propaganda which is a mixture of lying on nuclear explosion collateral damage, escalation/knockout blow propaganda (of the type used to start WWII by appeasers) and lying on the designs of nuclear weapons in order to ensure the Western side (but not the thugs) gets only incredible "strategic deterrence" that can't deter the invasions that start world wars (e.g. Belgium in 1914 and Poland in 1939.)* **"Our country entered into an agreement in Budapest, Hungary when the Soviet Union was breaking up that we would guarantee the independence of Ukraine." - Tom Ramos.** There really is phoney nuclear groupthink left agenda politics at work here: credible relatively clean tactical nuclear weapons are banned in the West but stocked by Russia, which has civil defense shelters to make its threats far more credible than ours! We need low-collateral damage enhanced-neutron and earth-penetrator options for the new Western W93 warhead, or we remain vulnerable to aggressive coercion by thugs, and invite invasions. Ambiguity, the current policy ("justifying" secrecy on just what we would do in any scenario) actually encourages experimental provocations by enemies to test what we are prepared to do (if anything), just as it did in 1914 and the 1930s.

ABOVE: 0.2 kt (tactical yield range) Ruth nuclear test debris, with lower 200 feet of the 300 ft steel tower surviving in Nevada, 1953. Note that the yield of the tactical invasion-deterrent Mk54 Davy Crockett was only 0.02 kt, 10 times less than than 0.2 kt Ruth.

It should be noted that cheap and naive "alternatives" to credible deterrence of war were tried in the 1930s and during the Cold War and afterwards, with disastrous consequences. Heavy "peaceful" oil sanctions and other embargoes against Japan for its invasion of China between 1931-7 resulted in the plan for the Pearl Harbor surprise attack of 7 December 1941, with subsequent escalation to incendiary city bombing followed nuclear warfare against Hiroshima and Nagasaki. Attlee's pressure on Truman to guarantee no use of tactical nuclear weapons in the Korean War (leaked straight to Stalin by the Cambridge Spy Ring), led to an escalation of that war causing the total devastation of the cities of that country by conventional bombing (a sight witnessed by Sam Cohen, that motivated his neutron bomb deterrent of invasions), until Eisenhower was elected and reversed Truman's decision, leading not to the "escalatory Armageddon" assertions of Attlee, but to instead to a peaceful armistice! Similarly, as Tom Ramos argues in *From Berkeley to Berlin: How the Rad Lab Helped Avert Nuclear War*, Kennedy's advisers who convinced him to go ahead with the moonlit 17 April 1961 Bay of Pigs invasion of Cuba without any USAF air support, which led to precisely what they claimed they would avoid: an escalation of aggression from Russia in Berlin, with the Berlin Wall going up on 17 August 1961 because any showing weakness

to an enemy, as in the bungled invasion of Cuba, is always a green light to dictators to go ahead with revolutions, invasions and provocations everywhere else. Rather than the widely hyped autistic claims from disarmers and appeasers about "weakness bringing peace by demonstrating to the enemy that they have nothing to fear from you", the opposite result always occurs. The paranoid dictator seizes the opportunity to strike first. Similarly, withdrawing from Afghanistan in 2021 was a clear green light to Russia to go ahead with a full scale invasion of Ukraine, reigniting the Cold War. von Neumann and Morgenstein's Minimax theorem for winning games - minimise the maximum possible loss - fails with offensive action in war because it sends a signal of weakness to the enemy, which does not treat war as a game with rules to be obeyed. Minimax is only valid for defense, such as civil defense shelters used by Russia to make their threats more credible than ours. The sad truth is that cheap fixes don't work, no matter how much propaganda is behind them. You either need to militarily defeat the enemy or at least economically defeat them using proven Cold War arms race techniques (not merely ineffective sanctions, which they can bypass by making alliances with Iran, North Korea, and China). Otherwise, you are negotiating peace from a position of weakness, which is called appeasement, or collaboration with terrorism.

"Following the war, the Navy Department was intent to see the effects of an atomic blast on naval warships ... the press was invited to witness this one [Crossroads-Able, 23.5 kt at 520 feet altitude, 1 July 1946, Bikini Atoll]. ... The buildup had been too extravagant. Goats that had been tethered on warship decks were still munching their feed, and the atoll's palm trees remained standing, unscathed. The Bikini test changed public attitudes. Before July 1, the world stood in awe of a weapon that had devastated two cities and forced the Japanese Empire to surrender. After that date, the bomb was still a terrible weapon, but a limited one." - Tom Ramos (LLNL nuclear weaponeer and nuclear pumped X-ray laser developer), *From Berkeley to Berlin: How the Rad Lab Helped Prevent Nuclear War*, Naval Institute Press, 2022, pp43-4.





DAILY EXPRESS

No. 15,509 THURSDAY MARCH 2 1950 CONTROLLING SHAREHOLDER LORD BEAVERBROOK Weather: Fair or fine One Penny

ATOM 1 'Man in the know' helped Russia on

ATOM 2 'The Fox' made no mistake in 7 years

TEA Price going up—supplies going down

ATTLEE Socialists told: Revolts are luxuries now

FUCHS GAVE BOMB TO RUSSIA

Survived purges by MI5 and got promotion

CLEVEREST SPY EVER KNOWN

By CHAPMAN PINCHER

IN 90 minutes at the Old Bailey yesterday, a riddle was solved: How did Russia make the atomic bomb so quickly? Dr. Klaus Emil Julius Fuchs, confidant and leading member of Britain's atom team, who began a 14-year jail sentence last night, gave them the know-how.

Almost from the first exciting moments in 1942 when British scientists were proving an atomic bomb was feasible, Fuchs had been fully in the know.

After release from 18B internment he joined another ex-German, Berlin-born Professor Rudolf Peierls, at Birmingham University. The value of the knowledge he built up at this stage is shown by this official statement:—

"Professor Peierls, assisted by Dr. Fuchs and others, used the experimental data provided by Liverpool and Cambridge to calculate the critical size of the bomb. They examined the mechanics of the reaction, and calculated the amount of energy likely to be released in an atomic explosion, studying the conditions for increasing the amount."

THE KREMLIN'S GUIDE

The reports Fuchs helped to prepare—and may have passed on to Soviet agents—had abstruse titles like "Critical radius and time constant of a sphere embedded in a spherical scattering container."

To his scientific counterpart in Moscow such titles promised more detailed evidence of the shape and size of the explosive atom-bomb core.

For two years—1944 to 1946—Fuchs worked in America's Los Alamos atom station, where the bombs were designed and built.

There he picked up those secrets of bomb mechanics about which the Americans are most sensitive.

Attlee will take it and cling on

By GUY EDEN

AS M.P.s assembled at Westminster yesterday for the first time, Tories were calling this the Turn-The-Other-Cheek Government.

It became known that the Government intends to put up with almost any rebuff, so as to remain in office as long as possible.

At the same time the Tories will not try to bring down the Government for some months at least — unless they are deliberately provoked by some controversial issue.

The belief was held in the lobbies last night that the Government may hold office into next year.

Fuchs prepared this atom report in 1943

EFFECT OF A SCATTERING CONTAINER

ON THE CRITICAL RADIUS AND TIME CONSTANT.

K. Fuchs. **SECRET**

1. Introduction

We consider in the following the critical radius and the time constant of a chain reaction in a sphere surrounded by a spherical container. We assume essentially that the mean free path is the same in the sphere and the container. For some purposes

THIS is the sort of information Fuchs passed on . . . Title page of a Government report on research to discover the best shape and size for the explosive core of an atom bomb. Prepared by Dr. Klaus Fuchs in 1943 for the British atom project—then code-named Tube Alloys—it is no longer secret.

Consider now a very thin container and put

$$f(r) = f_0(r) + f_1(r)\,\delta r_2 \qquad \delta r_2 = r_2 - r_1 \ll r_1 \tag{8.3}$$

$$\beta = \beta_0 + \beta_1\,\delta r_2$$

Subtracting (8.2) from (8.1) and retaining only terms of first order in δr_2 one finds

$$f_1(r) = \tfrac{1}{2}\beta_0 \left\{ \int_0^{r_1} K(r,r')f_1(r')\,dr' + \int_{r_1}^{r_2} K(r,r')\,f_0(r')\,dr' + \tfrac{1}{2}\beta_0\, p\, K(r,r_1')f_0(r_1) \right.$$

Multiply (8.4) with f_0 and integrate over the sphere; using the

From the same Government report . . . showing the intricate mathematical equations and the symbols in which Fuchs dealt.

separation potential gained in producing the fra
tial lost in re-mixing. In any one unit the ga
(1.6)

$$\sum \frac{b_\mu \delta_\mu^2}{2\left[\sigma(1-\sigma)\right]^2}$$

That lost by re-mixing is

$$\sum \frac{b_\mu (\delta_\mu - \mu \frac{d\sigma}{dn})^2}{2\left[\sigma(1-\sigma)\right]^2}$$

DEARER TEA—AND CUT IN RATION?

Express Staff Reporter

TEA prices are likely to rise, perhaps by 1s. 6d. a lb., a London tea broker said yesterday.

He expects the jump because of a Government bulk-contract argument going on in Ceylon—which may threaten half an ounce of the 2½oz. tea ration.

Ceylon wants to cut what she sends us from 130 million lb. to 100 million lb.—and charge more.

With the subsidy pegged any increase would be passed on to the housewife. At present she pays an average 3s. 4d. a lb.

The subsidy saves her 8½d. a lb.—and costs the country £15,000,000.

The Food Ministry may consider restoring free buying and reopening London's tea auction mart.

Milk sales drop—too dear?

People are drinking less milk since it was de-rationed on January 15. Consumption has fallen from the three pint ration to two and a half pints a week. An official of the National Dairymen's Association said: "Maybe it is too dear at 5d. a pint."

No petrol rush

CANBERRA, Wednesday.—Petrol stocks in Australia have risen by 14 per cent. since the Tory Government took office. Fuel Minister McLeay says. Consumption has risen little since rationing ended.

BRIDES KICK CLERKS AT AIRPORT

Express Staff Reporter: New York, Wednesday

WOMEN screamed and kicked and men shouted and pounded their fists on counters today when it was announced at Idlewild, New York's airport, that Flight Flight No. 100—for London—would be delayed indefinitely.

Judges step up jail for violence

Express Staff Reporter

JUDGES going on Assize have been recommended to pass heavier prison sentences on men and youths convicted of serious cases of violence.

Lord Goddard, the Lord Chief Justice, called a meeting of judges in his private room at the Law Courts to hear the proposal.

The step was taken because of the increase in violence since

4.30 a.m. LATEST

MUSEUM RAIDER HOAXED

CAPE TOWN, Wednesday.—A Raider stole "diamonds" from Cape Town Museum. All were glass replicas — one of the Cullinan diamond. — Express News Service.

FAMILY GASSED

NEW YORK, Wednesday.—Mr. Arline Kraeutler, aged 36, and her five children, aged eight months to 17 years, were found gassed in their home in West Orange, New Jersey, today.

CENtral 8000

flogging and birching were abolished by Parliament 18 months ago.

Lord Goddard himself dealt with two cases at the Old Bailey yesterday.

In Case No. 1 he sentenced 17-year-old James Robert Watts to SEVEN YEARS' JAIL and a 15-year-old Roger Norman Eves to seven years' detention for attacking and robbing a woman in a double-decker train near Blackheath Station, London.

He told them: "It is not

At a meeting of Socialist M.P.s yesterday before Parliament assembled Mr. Attlee and Mr. Herbert Morrison both stressed that absolute discipline is essential.

Since then he has been at Harwell, in Berkshire—the hub of British atom research. As head of the theoretical physics department the latest experimental results from many of the most closely guarded laboratories would be

Hence the difference is

$$\sum b_{\mu\mu}\left[\frac{d\sigma}{d\Omega}_{\mu} - t_{\mu}{}^{2}\left(\frac{d\sigma}{dt}\right)^{2}\right]$$

waiting to board the plane. They had waited two days.

Men and women—some of them war brides—advanced on the clerks in the Pan-American Airways office.

Cannon-shells in the coal

me to criticise the wisdom Parliament which prevents doing what I might have done months ago. I could then h had you whipped."

DAILY EXPRESS

CONTROLLING SHAREHOLDER
LORD BEAVERBROOK

No. 15,486 FRIDAY FEBRUARY 3 1950. Weather: Mainly fair One Penny

H BOMB Truman refuses a delay

SALE Man forced to buy back his own suit

FILM Fireworks thrown in cinema

BAN Ede stops political marches in London

'BUY OFF THE HELL BOMB'

U.S. atom boss urges world loan

'I PLEAD WITH YOU'

From VINCENT EVANS: Washington, Thursday

AMERICA should offer a 50,000 million dollar (£18,000 million) Marshall plan to the world, including Russia, if all other countries would agree to outlaw the hydrogen bomb, said Senator Brien McMahon, head of the Congress Atomic Committee, in the Senate tonight.

McMahon is one of President Truman's chief advisers on atomic affairs.

A few hours before his speech Truman told reporters that he refused to hold up development of the hydrogen bomb — which the Americans are calling the "hell bomb" — in favour of a plan for international control.

McMahon said the U.S. is spending 15,000 million dollars a year on armaments. He proposed that 10,000 million dollars of this should be set aside each year for five years and offered to the world on these two conditions:—

1 That all countries accept an effective programme for international control of atomic energy.

2 That all countries agree to devote two-thirds of their present arms budgets to constructive ends. This agreement would be enforced by inspection.

The world fund advanced by the U.S. would be administered by the United Nations.

Look at the sun

Speaking with great emotion, McMahon told the Senate: "I plead with every Congressman to go to his bedroom window every morning.

"Look at the sun. Realise that what goes on inside the sun millions of miles away, threatens to be re-enacted on this earth—in Washington, in New York, Los Angeles and Chicago. It is most horrible and terrifying.

McMahon is one of the few men in the confidence of the top American scientists working on the hydrogen project.

He is a lawyer and father of a nine-year-old daughter.

"Consider what sustained fear of the hydrogen bomb does to the individual. It constricts his imagination, paralyses his initiative, even affects his personal morality. It is the most subtle of poisons.

"Consider the crushing burdens imposed on our private enterprise economy. Consider the restrictions on freedom brought about by the atom bomb — loyalty checks, censorship, and widening areas of secrecy.

I warn you

"Look into the future and multiply that a thousand times. If you are candid and realistic, you will find it is difficult indeed to see a dissimilar role for freedom against that background. To stay alive we will find ourselves more and more compelled to imitate our totalitarian rival.

"If we win the race to build this weapon, what good is it going to do us? It just means that we gain time—and possibly only a short time—before the Kremlin achieves success also."

McMahon raised his hand and waved it round the senators.

Germans offer us ham

Express Staff Reporter

TINNED ham is being offered to British importers—by Germany.

One of Germany's biggest pre-war export firms has written to its former London agents:—

"We would like to renew relations with leading customers.

"We are also making all kinds of sausage, such as Italian and Hungarian sausages, bouquet and aspic in tins and we would like to send samples."

A principal of the London firm said: "We would like to give the Germans an order. But it is up to the Food Ministry whether import licences are granted or not.

£2,000,000 lost on apples

THE Food Ministry's bulk buying of 25,000 tons of Italian apples this season has cost the British apple-grower nearly £2,000,000.

Mr. Giles Dakin, chairman of the National Farmers' Union fruit committee, said yesterday: "Just when our apples were reaching markets in some Italian apples —tasteless and of poor quality —

Strachey warns butchers

ARREST: The boys accused of attack in the double-decker train



Roger Norman Eves
Aged 15, junior clerk. . . With Acting Chief Inspector Burgess (far right) at Yard



£6,000 found under a floor

Express Staff Reporter

SACKS and pillow-cases filled with £6,000 in silver were found buried under a floor yesterday.

When Mr. Kenneth Bisson, a plumber, went to pull up floorboards in an under-the-stairs cupboard in Belmont-road St. Helier, Jersey, to lay a pipe, he found a home-made trapdoor.

Under it was the hoard of half-crowns, florins, shillings, and sixpences dated 1922 to 1937.

It is believed the coins were hoarded by Mr. Bisson's uncle, Mr. Walter Bisson, who died a year ago. The island's Receiver-General will hold them until ownership is determined.

Mr. Kiss was first on murder list

TAX MAN SEIZES Mr. COOK'S SUITS

And he has to buy them back

Express Staff Reporter

MR. GOODMAN TALFOURD COOK sent two suits and a pair of trousers to a Reading firm of cleaners last December. He got them back yesterday by buying them off the income-tax collector—for £13 15s.

Mr. Cook went round to a branch of the Universal Steam Pressing (1929) Co. Ltd. and found the bailiffs in.

They were not only in charge of the shop but of Mr. Cook's single-breasted grey-blue serge suit, a plus-four suit and his best flannel bags.

There were ten or more suits belonging to other people, ten overcoats, and a dozen women's coats.

Because the firm owed the Treasury money under Schedule A —Property Tax—the whole lot were put up for auction yesterday.

PROTEST SENT

In a letter to Sir Stafford Cripps Mr. Cook protested that his clothes

Share dealers arrested

Reginald Miles, a member of the Stock Exchange, and Richard Palmer, a stock dealer, will be charged at the Guildhall today with conspiracy regarding deals in stocks and shares.

They were arrested in the City yesterday by members of the Fraud Squad, and detained overnight at Bishopsgate Police Station.

Mr. Miles was until recently a partner in a stock jobber's firm.

INGRID BERGMAN HAS A BABY BOY

Express Staff Reporter

ROME, Friday morning—Ingrid Bergman gave birth to a baby boy in a Rome clinic last night.

Both mother and son—fair-haired and blue-eyed — are doing well.

Miss Bergman and her husband Dr. Peter Lindstrom, a Hollywood brain surgeon, have been negotiating for a divorce. They were married in 1937 and have an 11-year-old daughter Pia—P for Peter, I for Ingrid.

The film star has announced that she will marry the Italian film director Roberto Rossellini when she is free. She is 35, he is 43.

Tonight Rossellini told a friend that Ingrid's son will be named Roberto.

Ingrid Bergman has filed application for a divorce in Mexico alleging cruelty, non-support, and incompatibility.

Rossellini was granted an annulment of his marriage by a civil court in Milan last month.

MET IN ITALY

He has a son, aged ten. He has announced his intention of marrying Ingrid.

They started work together in Italy last spring on the film "Stromboli," which was recently completed. Last Friday Rossellini said: "Ingrid is not going to make any more films, ever."

Dr. Lindstrom made a sudden flight to Italy last May "just to see and embrace Ingrid." He has not seen her since.

Ingrid and her baby have a private suite in the Villa Margherita, a fashionable nursing-home in a secluded part of the city. Rossellini booked three rooms.

By a coincidence the premiere of "Volcano," starring the Italian actress Anna Magnani, was held in Rome last night.

Anna Magnani, who was Rossellini's constant companion for three years, was to have made "Stromboli" with him. Then Ingrid came along—and got Anna's part.

Anna called in a Hollywood director to make "Volcano," which was rushed through as a counter-attraction to "Stromboli."

WHY TONIGHT?

Last night was to have been her triumph. The top flight of Rome's society was there to acclaim her film. So was Premier Gasperi, with the Diplomatic Corps. But Anna called off her personal appearance at the last minute.

She was one of the first to hear of Ingrid's baby—from a source in Rossellini's house.

In her flat overlooking the Tiber, she waved aside doctors who were pressing sleeping tablets on her, and cried: "Why, oh why, did it have to be tonight?"

Friends tried to persuade her to go to the cinema.

"What does my film mean compared with this?" she replied. "I just cannot face people. I refuse to go through with it."

But early this morning she sent out a statement for publication. It was: "Please convey my best wishes and congratulations."

"Leonard Mosley flew to Rome yesterday to review "Volcano." His story of the film and the night's drama is told on Page Four.

Not greasy—but

Cracker starts cinema fight

Express Staff Reporter

SMOKE bombs and fireworks were thrown and fights broke out in the New Gallery Cinema, Regent-street, last night as the anti-British film "Sword in the Desert" was ending.

A packed audience of 1,500 people was watching the last five minutes of the last reel when there were shouts in the stalls.

A firework went off. The lights went up. Then two smoke bombs were thrown from the circle.

Police rushed in and helped the cinema attendants quit up and throw out the fighting groups.

Fumes from the smoke bombs spread through the cinema. As the demonstrators were marched out shouting the audience put handkerchiefs to their mouths to keep out the smoke.

Then the film restarted, and the noise of another smoke bomb bursting came from the circle stalls.

It was the first day of the film, and the New Gallery management received a letter warning of trouble if it was put on.

An hour after the audience left, smoke was still pouring into Regent-street from the foyer of the cinema.

A man was taken to Savile-row Police Station and questioned.

The film, made in Hollywood and released by A. J. Arthur Rank company, General Film Distributors, is based on the Jewish-Arab fighting in Palestine.

British troops are shown treating Jews harshly and being killed in battles.

4.30 a.m. LATEST

BOY FUGITIVES JUMP 30 FT.

Two boys who escaped from approved school two days ago jumped 30ft. from window of condemned house in Glasgow where discovered during night. Both were taken to hospital. One was detained.

INGRID'S CLINIC CALLS POLICE

ROME, Friday morning—Clinic where Ingrid Bergman had baby called police headquarters for protection early today when crowd collected. Four car-loads of police drove up. Two policemen stayed there.

20 DAYS TO THE POLL

CENtral 8000

£23,000 a bandit

SINGAPORE, Thursday. — Forty-eight Communist guerrillas were killed in Malaya last month. This includes 23 in one action. With the anti-rebel war costing about £35,000 a day the price of killing the 48 is £23,500 each.—Express News Service.

MR STRACHEY, the Food Minister, spoke at St. Andrews last night of the butchers' appeal for an impartial inquiry into the extra 7d. in the £ levy on wholesale prices.

He said: "We are ready to make further ongoing investigations if the butchers wish it. But the Food Ministry cannot divest itself of the ultimate responsibility for a decision of this kind."

And they attack him

THE butchers this morning put out a document, "The Truth about Meat," condemning Mr. Strachey's State-buying policy.

"This has encouraged State selling (in the Argentine) forced up prices and compelled Britain to take inferior meat — the exportable surplus," says the document, issued by the Imported Meat Trade Association.

The butchers believe "a return to free enterprise would quickly improve quality and lower prices."

French send pork

PARIS, Thursday. — France is sending 770 tons of frozen pork to Britain.—Reuter.

"Let me warn you with every sign of solemnity that I can command," he said, "at this moment in history. Building the

POCKET CARTOON
by OSBERT LANCASTER



"I hate gassiping about a brother officer, but they're all saying in the club that 'Tatters' Mountpleasant is months behind with his Union dues again."

Ede bans London election parades

ALL political processions are banned in London for three months from today—the day the General Election campaign officially opens.

Police had received information that a series of parades were arranged by members of the Union Movement through the East End. The first was to be held tomorrow. And the Communists planned counter-demonstrations.

Sir Harold Scott, Commissioner of Police, had a telephone talk with Mr. Chuter Ede, the Home Secretary. Mr. agreed that the ban should be put on—only four weeks after a previous three-month ban was lifted.

Police last night visited the committee rooms of Mr. Lester Hutchinson, who was expelled from the Socialist Party, and is now standing as an Independent Socialist in West Walthamstow against Mr Attlee. They asked about the procession arranged by his supporters for tonight.

They took details of the route and left—but went back five minutes later and said the procession could not be held.

Mr. Hutchinson's agent said "We shall still ask our supporters to walk in a manner within the letter of the law carrying posters, slogans and torches, well-dispersed, and we hope the police will not interfere."

CITY EDEN writes: The 40th is expected to hold a Privy Council about noon today. He will formally accept the advice of the Council to dissolve Parliament, and write his signature, in the top left-hand corner of his Proclamation.

It will then be taken to the House of Lords, where the Great Seal will be fixed—bringing the Proclamation into effect at once.

Lord Jowitt, the Lord Chancellor, is official custodian of the seal. He will preside over the historic procedure in a small room—a kitchen and in one corner an oven in another—in the House.

Officials will pour red plastic into a silver mould. Then, with ribbons, they will fix the seal, six inches across, to the parchment.

And from Parliament's own post office, with will be sent out by express post ordering returning officers in each of the 625 constituencies to make arrangements for the election of a new M.P.

Godiva on the roof

TURIN, Thursday.—Police chased 24-year-old Anna Meoli today as she climbed naked over a roof. She said her husband threatened to kill her. He said she was hysterical.—Reuter.

Czechs jail man who fed Britons

PRAGUE, Thursday.—The Czech owner of a canteen which served British Embassy officials has been sent to a labour camp for two years. He was tried with 56 other restaurant owners. All received the same sentence.—Reuter.

New meat talks

BUENOS AIRES, Thursday.—The Commercial Minister to the British Embassy in Buenos Aires, Mr. E. J. Joint, has been recalled to London for talks on a new meat agreement with the Argentine. He leaves on Saturday.—Express News Service.

Boom day

NEW YORK, Thursday.—Wall-street had its best one-day gain since June 15 today—with stocks increasing by nearly 1,000 million dollars (£357,140,000).—B.U.P.



James Robert Watson

Aged 17, moulder's apprentice Pictured on summer holiday, 1943

THESE youths were accused at Woolwich yesterday of attacking a woman in a double-decker train on Tuesday.

After evidence of arrest, Watson—of Gilbert-road, Belvedere, Kent—and Eves—of South-road, Erith—were remanded in custody. The charge: Being concerned together, in a railway carriage, in robbing Mrs. Ethel Ann Miller, with violence of a wallet containing £1.

It was said that the youths volunteered statements at Blackheath Police Station.

Mrs. Miller, 50-year-old company director, was reported last night to be "still seriously ill."

Children saved from jet

A Meteor jet plane yesterday bounced in flames across a garden where two children had been playing five minutes before.

It crashed 100 yards away—at Burton Agnes, near Bridlington, Yorks—killing the pilot and injuring two men as they worked.

In vain. Under Section 162 of the Income Tax Act, which incorporates Section 96 of the Tax Management Act 1880 (based on a legal decision of 1813 on window tax) Mr. Cook's suits and trousers were forfeit.

So the garments went up for public auction and Mr. Cook's clothes were knocked down to Mr. Cook for £13 15s.

Forty-year-old Mr. Cook, who is an accountant and secretary of the Reading Chamber of Commerce, said last night:—

"Here you have customers' goods sold without their knowledge, while the goods of people who owe the tax are not yet sold.

"The shop fittings still have to be auctioned by the Inland Revenue. That makes me mad.

WORTH £30

"The blue serge suit was given to me when I was in America in 1948. I should say it is worth about £30—it is practically new.

"The tweed plus-four suit is fairly old. I haven't a clue how much it cost—my wife chooses all my clothes and I just pay the bill.

"The trousers are an almost new pair of grey flannels. I think they were pretty expensive."

Said Mrs. Cook: "The plus-fours are pre-war and cost £10. The flannels £9 5s."

An Inland Revenue official said: "It is in order to distrain on any goods on the premises in a case of Schedule A (Property Tax). And what else is there to distrain on in a cleaners shop but the clothes?

"Mr. Cook's only redress is against the company. He has none against the Inland Revenue."

Beaverbrook says 'Coming home'

KINGSTON, Jamaica, Thursday.—Lord Beaverbrook said in Kingston today: "My stay in Jamaica is nearly at an end. I shall be leaving for England shortly."—B.U.P.

PAGE ONE ENDPIECE

ALL FOR A PENNY

THREE girl students stretched a 450-yard piece of string along busy Park-street, Bristol, yesterday. One tied a penny to the string. Another ran up and down clearing it out of walkers' way. The third hauled the penny the length of the street. Why? Said 16-year-old Constance Cook: "Somebody said it was impossible. It is not."

Police probe 'Nazi racket'

STUTTGART, Thursday.—Police are investigating an allegation that Karl Stroehle, acting head of a Ministry prosecuting Nazis, tried to do a deal to help Dr. Schacht, Hitler's financier.

Schacht has faced five denazification trials. Karl Stroehle, who is said to have ordered his officials to "commit irregularities" in such cases, has resigned.

The alleged scandal is said to involve dozens of wealthy business men, a former judge and chief prosecutor.—Reuter.

Student quizzed on giant art theft

KIEL, Thursday.—A 25-year-old German student today gave himself up to the police who want to question him about the theft of 5,000 works of art. They include pictures and drawings by Rembrandt, Durer and Holbein.

Briton gets apology

FRANKFORT, Thursday. — The American Army in Germany tonight apologised to a British business man, Rex Hill, and a Norwegian colleague for arresting them as suspected bank robbers. They were held for 3½ hours.

QM loses day

CHERBOURG, Thursday. — An Atlantic storm has delayed the Queen Mary, and 950 passengers will be a day late when they reach Cherbourg tomorrow.

Don John on bail

BAYONNE, Thursday.—Don John da Silva Ramos, accused of murdering his 20-year-old wife Monique, was released on £1,330 bail tonight.

GROOMED



–see for yourself!

Most men need something on their hair, to look smart, and women want men to look both neat and natural. That's why men are using Nufix. Nufix is the *light* hair cream for a man. With its pure vegetable oils and lanolin Nufix keeps your hair neat and tidy all day—and gives it that nice natural look. Try some and see!

Nufix



THE HAIR CREAM FOR MEN THAT WOMEN LIKE

DAILY EXPRESS

No. 15,486 FRIDAY FEBRUARY 3 1950. CONTROLLING SHAREHOLDER LORD BEAVERBROOK Weather: Mainly fair One Pe

H BOMB Truman refuses a delay

SALE Man forced to buy back his own suit

FILM Fireworks thrown in cinema

BAN Ede stops political marches in London

'BUY OFF THE HELL BOMB'

U.S. atom boss urges world loan

'I PLEAD WITH YOU'

From VINCENT EVANS: Washington, Thursday

AMERICA should offer a 50,000 million dollar (£18,000 million) Marshall plan to the world, including Russia, if all other countries would agree to outlaw the hydrogen bomb, said Senator Brien McMahon, head of the Congress Atomic Committee, in the Senate tonight.

McMahon is one of President Truman's chief advisers on atomic affairs.

A few hours before his speech Truman told reporters that he refused to hold up development of the hydrogen bomb — which the Americans are calling the "hell bomb" — in favour of a plan for international control.

McMahon said the U.S. is spending 15,000 million dollars a year on armaments. He proposed that 10,000 million dollars of this should be set aside each year for five years and offered to the world on these two conditions:—

1 That all countries accept an effective programme for international control of atomic energy;

2 That all countries agree to devote two-thirds of their present arms budgets to constructive ends. This agreement would be enforced by inspection.

The world fund advanced by the U.S. would be administered by the United Nations.

Look at the sun

Speaking with great emotion McMahon told the Senate: "I plead with every Congressman to go to his

Germans offer us ham

Express Staff Reporter

ARREST: The boys accused of attack in the double-decker train



INGRID BERGMAN HAS A BABY BOY

Express Staff Reporter

ROME, Friday morning.—Ingrid Bergman gave birth to a baby boy in a Rome clinic last night.

Both mother and son—fair-haired and blue-eyed — are doing well.

Miss Bergman and her husband, Dr. Peter Lindstrom, a Hollywood brain surgeon, have been negotiating for a divorce. They were married in 1937 and have an 11-year-old daughter Pia—P for Peter, I for Ingrid.

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Cracke starts cinem fight

Express Staff Repo

SMOKE bombs fireworks thrown and broke out in the Gallery Cine Regent-street, night as the British film "Swo the Desert" ending.

A packed audience people was watching five minutes of the when there were sh the stalls.

A firework went lights went up. T smoke bombs were from the circle.

Police rushed in and

4.30 a.m. LA BOY FUGIT JUMP 30

Two boys who esca approved school two jumped 30ft. from wind demned house in Gla discovered during nig were taken to hospital detained.

INGRID'S C CALLS PO

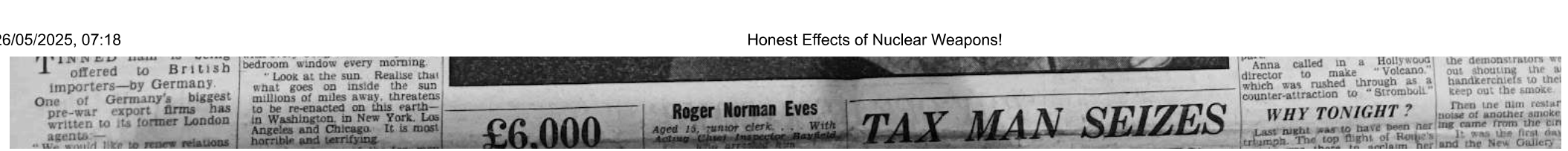
ROME, Friday morni where Ingrid Bergman called police headqu protection early today collected. Four car-loa drove up. Two police there.

20 DAYS TO THE

CENtral 8

cinema attendants spl throw out the fighting

Fumes from the sm spread through the



offered to British importers—by Germany.

One of Germany's biggest pre-war export firms has written to its former London agents:—

bedroom window every morning.

"Look at the sun. Realise that what goes on inside the sun millions of miles away, threatens to be re-enacted on this earth—in Washington, in New York, Los Angeles and Chicago. It is most horrible and terrifying.

£6,000

Roger Norman Eves

Aged 15, junior clerk . . . With Acting Chief Inspector Barfield

TAX MAN SEIZES

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WHY TONIGHT ?

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"Look at the sun. Realise that what goes on inside the sun millions of miles away, threatens to be re-enacted on this earth—in Washington, in New York, Los Angeles and Chicago. It is most horrible and terrifying.

McMahon is one of the few men in the confidence of the top American scientists working on the hydrogen project.

He is a lawyer and father of a nine-year-old daughter.

"Consider what sustained fear of the hydrogen bomb does to the individual. It constricts his imagination, paralyses his initiative, even affects his personal morality. It is the most subtle of poisons.

"Consider the crushing burdens imposed on our private enterprise economy. Consider the restrictions on freedom brought about by the atom bomb — loyalty checks, counter-espionage, and widening areas of secrecy.

I warn you

"Look into the future and multiply that a thousand times. If you are candid and realistic, you



£6,0

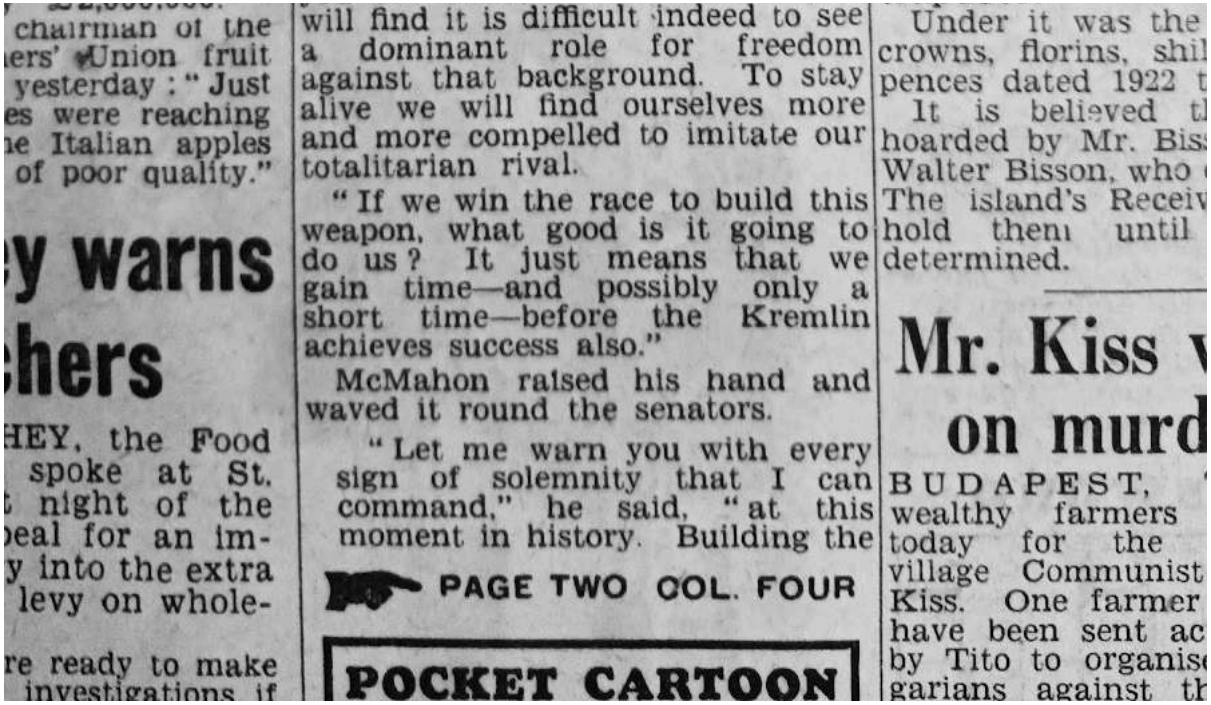
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Express Staff

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will find it is difficult indeed to see a dominant role for freedom against that background. To stay alive we will find ourselves more and more compelled to imitate our totalitarian rival.

" If we win the race to build this weapon, what good is it going to do us? It just means that we gain time—and possibly only a short time—before the Kremlin achieves success also."

McMahon raised his hand and waved it round the senators.

" Let me warn you with every sign of solemnity that I can command," he said, " at this moment in history. Building the

PAGE TWO COL. FOUR

POCKET CARTOON

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Governments, the rest by a levy of 6s. a head on Africans in Buganda. —Express News Service.

jobs.

Union leaders meet at York next Thursday to consider the next step.

'BUY OFF HELL-BOMB'

FROM PAGE ONE

hydrogen bomb does not promise us security—not positive security.

"It promises only the negative result of averting for a few months or perhaps a few years, a well-nigh certain catastrophe.

"This hydrogen bomb. What does it mean? It means we have this alternative—first, a cold war armaments race; or second, the U.S. can launch a crusade for world-wide atomic peace. Which way are you going to choose?

"Let us cast aside all old thinking. Let us tap at the roots of our imagination and ingenuity. Let us not regard any suggestion as too startling or unconventional. Let us be inspired and disciplined by our code of ethics and democratic, peace-loving decencies.

"If you accept my suggestion—10,000 million dollars for each of the next five years—we would have made the cheapest monetary bargain in our history . . . saved mankind from destruction by fire. For how can it be possible for free institutions to flourish in a situation where military and civil defences must be ceaselessly poised to meet an attack that might burn up 50,000,000 Americans?

"And remember—that would not happen in the space of one evening. It would happen in the space of a few minutes. How can you contemplate that?"

'Challenge Soviet'

He proposed that the U.S. should challenge Russia to allow a meeting of the United Nations in Moscow to discuss atomic peace—and publish the proposal in Soviet newspapers.

In 1945 and 1946, when thoughts were focused on the Hiroshima bomb, the U.S. had a chance to wage atomic peace, but had not exploited it.

"Our present concern with the hydrogen bomb furnishes a second

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DAILY EXPRESS

CONTROLLING SHAREHOLDER
LORD BEAVERBROOK

THURSDAY FEBRUARY 16 1950

Weather: Dull and windy

One Penny

No. 15,497

ATOM 1 Bevin to Churchill: 'Stunt proposal'

ATOM 2 Attlee to Churchill: 'Leave it to UNO'

BREAK-UP Whistling Boomerang splits in air

INGRID Rossellini and Bergman denounced by Vatican

BEVIN CALLS IT A STUNT

'H-bomb is a job for UNO'

Empire Union means Peace

By LORD BEAVERBROOK

WHY is the Empire policy important? It is important because it represents the one and only way to peace and security.

Peace—a real peace—will never be maintained by force of arms alone. Only by friendship.

And the only way in which friendship between Russia and America can be obtained is if a strong and united British Empire acting as a third world Power bridges the gap between East and West.

★

So, too, only a united Empire can bring high wages and real security of employment to the workers of Britain.

To ourselves to foreign markets and forever more we face the fear of unemployment.

But develop the Empire, tap its undeveloped treasures, and the pay packet of every British working man will be increased. Ahead stretches the prospect of a secure and ever-increasing standard of life for every man, woman, and child.

This is the way to end for all time the threat of financial insecurity or dependence on the charity of others. For this is the certain way to ensure within the bounds of a United Empire great and guaranteed markets for the products of our labour.

★

But we seek not only to raise our own standard of life. The conception is grander than that—the development of the standards of living of all citizens of the Empire.

The advantages we seek to bestow on the inhabitants of Jamaica and on those who live in Nigeria are just as important to the Empire Lobby as Full Employment with high wages here at home.

Can our project succeed? It must.

The new Parliament and those responsible for government must carry out the long-deferred, greatly desired programme for Union Now throughout the British Empire.

Beaverbrook

The Empire Lobby

Ask your candidates to pledge themselves to the Programme for Empire Union Now.

LOWNDES OF CLAPHAM SPEAKS OUT

ATTLEE: IT'S RECKLESS

Express Political Correspondent

MR. ATTLEE and Mr. Bevin both reacted last night to Mr. Churchill's Edinburgh Declaration on the atom bomb.

Mr. Bevin labelled the Churchill call for Big Three talks on the highest level as "a stunt proposal."

He referred to it only obliquely in his broadcast, and in only one sentence. That took him more than two and a half hours to frame, and he did not decide before he talked on the long-distance phone with Mr. Attlee.

Mr. Attlee, speaking at Nottingham, ignored the Big Three part of the Churchill Declaration, and referred only to Mr. Churchill's remark that "it is very odd" Britain has no atom bomb.

Of that, Mr. Attlee said:—

"Mr. Churchill ought to know. He made the agreement with the United States. He knows perfectly well the agreement was that atomic energy should be developed in America and Canada.

"He knows perfectly well why it takes longer here. He knows perfectly well the long time it takes anywhere.

I took action

"That kind of thing ought not to be thrown recklessly by a man who is a statesman into a very difficult question, accompanied by what I can only describe as gross misrepresentation."

Earlier yesterday, in an interview at Lincoln on Mr. Churchill's suggestion for a conference, Mr. Attlee said:—

"I took action almost as soon as I became Prime Minister on this topic. I went across and saw the Americans and the Canadians on it.

"Thereafter we have been unceasingly endeavouring to bring the whole thing under the control of the United Nations.

"Whether there would be any use in making another approach is a matter for consideration. I do not quite see the suggestion which had been made by Mr. Churchill, but at the present moment it rests with the United Nations."

Mr. Bevin left up to his one-sentence comment by a recital of history. Thus:—

"We took the United Nations basis upon which to build the whole edifice of our policy.

'Vigorous policy'

"Therefore, as soon as we came into power, we commenced to discuss with the United States the control of atomic energy.

"Since then we have pursued a vigorous policy trying to get international control. But it is clear that if confidence is to be established between nations who have got the atomic energy there must be inspection and collaboration.

"Until now, every effort made by the United States and ourselves has failed.

"Russia is a closed book and at present her people are being more cut off than ever but, if peace is her objective, as it is ours, inspection and control of atomic energy is not too great a price to pay.

"I think it is clear from what I have said that this is not a problem which can be solved by any stunt proposals.

POCKET CARTOON

by OSBERT LANCASTER



"I suppose you blasted radicals will try to explain this away by saying the fellow had one tomato-juice too many!"

Former directors summoned

Express Staff Reporter

SUMMONSES against Mr. Joseph Leslie Musgrave and Mr. Arthur Edward Patrick Hinds, once directors of the former Richard Critall and Co., Ltd., and Mr. Kenneth Forbes Steven, a member of a firm of accountants, were issued by the Bow-street magistrate yesterday.

The summonses arise out of a prospectus in 1947. The present Richard Critall and Co. is a reconstruction of the former company.

A representative of the Director of Public Prosecutions applied for the summonses. He was accompanied by Chief Superintendent Arthur Thorp and Superintendent George of Scotland Yard. The case will be opened at Bow-street on March 14.

'Churchill in world of Fuehrers'

MR. ARTHUR WOODBURN, Secretary of State for Scotland, told students at Edinburgh University yesterday:—

Mr. Churchill is a great modern statesman, and being so carries a great responsibility. Judging by last night's speech he still lives in a world of Fuehrers.

He seems to think personal differences between leaders of Governments the answer to the present tension in international affairs.

Students of history know that while individuals play a great part in international affairs, they cannot succeed in eliminating the fundamental differences existing between nations that are ideological, military, and economic.

To suggest that world affairs can be settled by three people around a table is fantastic. World affairs must be discussed in an atmosphere of reality.

I TREMBLE, SAYS SIR HARTLEY

SIR HARTLEY SHAWCROSS said at Goole last night:—

Every time Mr. Churchill makes a speech he starts off a fresh stunt.

The more I listen to and read Mr. Churchill's speeches, the more I tremble—and I mean this—for the future of the peace of the world if ever he should get back to the position he seeks.

IT DELIGHTS ME, SAYS LIBERAL

MR. CLEMENT DAVIES, Liberal leader in the last Parliament, said:—

I warmly endorse Mr. Churchill's proposal that a new and supreme effort should be made at the highest level to bridge a gulf between the Western world and Russia.

I am delighted to know that Mr. Churchill has come round to a view which has been so strongly advocated by Liberals during the last two years.

READY FOR TALKS IF—SAYS U.S.

WASHINGTON, Wednesday.—The U.S. is ready to discuss outstanding issues with Russia, but the initiative must come from Russia, said Mr. Dean Rusk, a deputy Under-Secretary of State.

"The door to negotiations is always open on our side," Mr. Rusk said. — Express News Service.

A NEW MISSION TO MOSCOW?

NEW YORK, Wednesday.—Raymond Daniell writes in the New York Times:—

Today it has been suggested that Lord Beaverbrook might be Mr.

Mr. Jacob Goldsilvershave is robbed



WHERE IT HAPPENED
Mr. Goldsilvershave is in this Express reconstruction

PILLION BANDITS RAID JEWELLER

Express Staff Reporter

A PILLION bandit jumped on Mr. Jacob Goldsilvershave, 66-year-old jeweller and watchmaker, at the front door of his home in Greatorex-street, Stepney, E., last night.

He got away with a battered attaché case containing Mr. Goldsilvershave's entire stock—£700 worth.

"I had closed my shop in Fieldgate-street," the watchmaker said. "I walked through the dark passage leading to my home.

"As I put my foot on my door-step a short, thick-set man in a tawn rain-coat came up behind me, jumped on me, punched me, and snatched my bag.

"I saw him run to a motor-cycle standing across the street with its engine running. He leaped on the pillion seat and they roared off down Whitechapel-road towards Mile End."

In Mr. Goldsilvershave's attaché case, which was held together with black thread and string, were 42 watches and watch movements, gold cuff-links and a pearl necklace.

'NOT INSURED'

"The terrible thing" he said, "is that I am not insured. My little shop was bombed and the insurance companies will not take me on."

Kent and London police were hunting last night for a young man with slicked-back hair who, with a blonde girl, staged a smash-and-grab raid on a wine store in Market-parade, Sidcup.

The couple drove up in the store in a small green saloon. The man got out and heaved a heavy sack through the plate-glass door; the woman stayed at the wheel.

Inside, the man grabbed cash from the till and 12 bottles of gin from under the counter.

Within two minutes the raid was over and the car had disappeared.

The girl is said to be between 20 and 25. She was wearing a light raincoat and fur-lined hostess.

VATICAN HITS AT INGRID

Rossellini's divorce is condemned

Express Staff Reporter: Rome, Wednesday

MONSIGNOR DINO STAFFA, a judge of the Holy Rota—the Vatican tribunal—tonight issued a public condemnation of what he calls "the Rossellini-Bergman scandal."

In an interview with Osservatore Romano, official newspaper of the Vatican, he says: "Even if they marry again, their situation is that of two people publicly committing adultery.

"The fame they enjoy and the publicity given to their case only increases the scandal of their lives and their responsibility before God.

Monsignor Staffa claims that by agreeing to accept as valid in Italy the divorce secured by film chief Roberto Rossellini in Austria, the Turin Court of Appeal violated the concordat between Italy and the Holy See.

'NO COMMENT'

The concordat stipulates that annulments of marriages celebrated by the Roman Catholic Church shall be reserved in Italy exclusively to ecclesiastical tribunals.

Rossellini refused to comment tonight. He is a Roman Catholic and he announced recently that he would seek an annulment of his first marriage by a Vatican tribunal in order and marry Ingrid Bergman in church. Their two-week-old baby will also be brought up as a Roman Catholic, he said.

C. T. R. Thompson cables from New York: More police than people queued outside the Broadway cinema where "Stromboli," the film Ingrid Bergman made with Roberto Rossellini, opened yesterday.

The police were there to protect fans from the ban Bergmans brigade who had threatened to picket the cinema.

But there were no pickets and, despite lurid posters featured all over America, few fans.

QUEUE IN SNOW

The film was opened on 200 other U.S. screens. In Washington, Chicago, and New York there was a ban-Bergman resolution. One town council asked all cinemas to send back prints of the film.

It was snowing heavily there, but 200 people queued before the doors opened. About 1,000 bought tickets by the time the picture started.

Mr. John Vernon, spokesman for Ingrid Bergman's ex-husband, Dr. Peter Lindstrom, has been missing since Monday.

Mr. Vernon, who is 42, was driving a car owned by Miss Bergman when he left his home in California to keep an appointment.

Cafe offers 3d. meals

BERLIN, Wednesday.—A cut-price restaurant where Germans can eat a good meal for threepence opened today.

The 3d. meal is mussel herring, smoked salmon, meat salad, and unlimited bread rolls.

The restaurant—privately owned—offers Russian egg dishes with sardines and smoked salmon as well as pork sausages with potato salad at 2s 1d.—Reuter.

Four men and girl on gun charge

Four young men, arrested after a police chase in the Strand on Tuesday night, were charged last night with robbing George Broadbent at Regent's court, Lambeth, while armed with a revolver.

Three of the men were also charged, along with a 19-year-old girl arrested at the same time, with being in possession of a revolver with felonious intent.

All five will appear in court at Lambeth today.

Robins picked as captain

Middlesex Cricket Club announced last night that R. W. V. Robins will captain the side next season. He is 43 and has been captain twice before.

Robins said he hopes to play in about half Middlesex's 28 county matches. When he cannot play a sub-committee, of which he is a member, will choose a deputy.

He does not object to a professional captain. Hilton Compton or W. J. Edrich (a professional turned amateur) may take my place," he said.

Freddie goes out

Freddie Mills announced last night: "I have finally decided to retire from the ring."

Island man cut off a fortnight

Mr. R. A. Keith-Mason was rescued by a boatman last night after being stranded alone for 14 days on the 188-acre Channel island of Brecqhou. He is the owner of Sark and his only provisions were a ton of potatoes and cold water.

He was discovered sailing exhausted in a cottage.

Jet smashes on sound barrier

By BASIL CARDEW

THE Whistling Boomerang—an experimental tailless jet plane—which disintegrated over Brickhill, Bucks, yesterday, is believed to have crashed against the barrier of sound.

The 28-year-old pilot, Squadron-Leader John Muller

4 a.m. LATEST HAIL INJURES PLANE PILOT

ROME, Wednesday.—Injured in hail of four-inch diameter stones made forced landing safely at Brindisi today after his machine smashed cabin windows. Glass splinters cut his face.

CHANNEL SOS

PARIS, Wednesday.—Russian cargo freighter Sukhona was rescued in the Channel tonight after sending SOS.

7 DAYS TO THE POLL

CENtral 8000

Rowland, D.S.O., D.F.C., was thrown out and found dead in a wood.

A similar sentiment in a Whistling Boomerang signed Geoffrey de Havilland, the test pilot, in November last. Now there is only one plane of the kind left—a secret one.

But the machine which crashed yesterday, when piloted by Squadron-Leader John Derry in September 1948, got through the barrier of sound.

This was the only time the feat has been performed in this country.

'The barrier'

Yesterday, the planes which developed on the plane neared the speed of sound were not mates.

Over Bucks, at a "safe" distance they are released, once a plane passes the speed of sound—about 660 miles per hour.

There was no explosion yesterday. The cockpit of the de Havilland 108 held the only human in the engine were found intact.

Mr. Geoffrey de Havilland was on a test flight from the Royal Aircraft Establishment, Farnborough.

The Whistling Boomerang was built three years ago and used in research for the Supersonic Comet. When de Havilland's Comet jet-liner goes into service it will be flown at an angle of 45 degrees.

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SPEARS OUT

MR. ROY LOWNDES, 38-year-old New Zealander who is Tory candidate for Clapham, told his supporters last night :—

"I welcome the formation of the Empire Lobby. I feel it can be the economic as well as the emotional salvation of our people. And I am sure it will be welcomed in the Dominions."

Referring to O.E.E.C.—Organisation for European Economic Co-operation—Mr. Lowndes said : "To match that, the first thing we must do is to establish what I like to call O.B.E.C.—Organisation for British Empire Co-operation."

He said the Socialists had done the greatest disservice to Britain and the world by whittling away Imperial Preference.

The Americans are our best friends outside the British world," said Mr. Lowndes.

"But we must say to them plainly that the terms of trade between countries of the British Empire are our concern alone."

£6 A WEEK MINIMUM? YES, YES–NO, NO

AT hustings all over the country last night the £6-a-week minimum pay packet project was bucked—or condemned.

ALDERMAN WILLIAM HANCOCK, Tory candidate for Stoke-on-Trent, said at Hanley : "There is a minimum level at which all people must be sustained. Under present conditions I think we should start at £6 a week as that minimum figure.

"In future it would have to be in accordance with the Government's ability to maintain the value of the £."

"I believe a Conservative Government could maintain this £6 standard, under which no worker should be allowed to fall. It will be our first consideration to keep that standard."

FOR SOLDIERS ?

MR. JOHN MAUDE, K.C., Tory candidate for Exeter was asked if the £6-a-week minimum pay advocated by Lord Beaverbrook would apply to the serving man.

He replied, "I do not know. I have not been in touch with Lord Beaverbrook for many years.

"I now take off my hat to Lord Beaverbrook, and I do not intend to be frivolous about him, although he is steered at in the Socialist Party for reaping what, untruly at the Empire, believe it is going to pay dividends."

Mr. Maude said a basic living standard for everybody was desirable. But he suggested that the £6-a-week minimum would not work in a country with universal suffrage because people would not remain content, and envy, hatred and malice might be engendered.

MR. KEITH JOSEPH, Tory candidate for Dunstable, said at Manchester : "Certainly let us have a £6 minimum wage.

"But let us note that British trade unionism, with its peculiar taste for Socialism, has added two million administrators to the national load who do not produce anything, but are supported from

PAGE TWO, COL. FOUR

'Bus fares going up' row

BUS operators, meeting in London, were told by Mr. Peter Yorke, their public relations chief, last night :—

"Fares in the London area are to be increased after October 1 to help offset losses on British Railways.

"Further, if bus nationalisation is allowed to go through, fares will be raised throughout the country.

"This is the declared policy of the British Transport Commission."

A TRANSPORT COMMISSION spokesman said : "We deny that the increase scheme for London which will be submitted to the Transport Tribunal as soon as it is ready, contemplates a general increase in fares to offset the deficit on British Railways.

"The main purpose will be to iron out anomalies.

"At no time have the commission made any declaration to the effect that they intend to raise bus fares throughout the country, and they are not in any position to do so."

We'll be ready

Mr. Bevin added : "We shall continue to build up security wherever we can, expand trade, give assistance where possible, and if Russia shows the slightest change of attitude, and indicates her readiness to settle these relationships and give the world complete peace, then we shall be ready to enter into discussions with the object of abolishing the possibility of war and enabling all nations to co-operate with each other."

Questioned last night at Dumbarton on a Scottish election tour Sir Stafford Cripps said :

"I agree with Mr. Bevin. This is a matter which it would not be advisable to deal with in small politics, especially at election time.

"These problems are being dealt with by serious consideration by all parties concerned, so as whether we can arrive at some agreement by which these terrible weapons can be banned."

The Press was first informed that advance copies of Mr. Bevin's broadcast would be available "after 8.30 p.m." Then, at 9.30, the Socialist Party put off issuing the speech "until further notice."

A third house said it would be available "after 8 o'clock." It was issued at 8.45, half an hour before Mr. Bevin went on the air.

The amount of interest aroused by Mr. Churchill's Declaration is understood to have surprised Socialist organisers. Their first reaction was to ignore it, but too many voters were calling for an indication of the Socialist attitude.

In again

HELSINKI, Wednesday.—Seventy-eight-year-old Juho Paasikivi, Liberal-Conservative, was re-elected President of Finland today.

WORLD COULD END IN A MINUTE

OTTAWA, Wednesday. — Dr Allan Mann, atom scientist at Ottawa's Carleton College, said today :—

Explosion of the first hydrogen bomb might cause the whole world to disintegrate.

Given the right conditions, the explosion could turn us all into little suns, probably in less than 60 seconds. It would all be over so quickly that we would not know what hit us.—B.U.P.

Front of shop blown 20ft.

An explosion in the basement of a woodworking shop in Charles-square, Hoxton, N., blew the front on to a bomb site 20 feet away and smashed windows in seven houses last night.

A nine-inch brick wall at the rear was left bulging. Machinery weighing more than two tons was moved three and four feet. Unfinished cabinets and turned pieces of wood were blown into the street.

Ex-Nazi cheered after acquittal

DÜSSELDORF, Wednesday.—Hundreds of nationalists cheered outside a German court today when Wolfgang Hedler, Right-wing deputy and ex-Nazi, was acquitted of making a Hitler-like and anti-Semitic speech.

Then thousands of German trade unionists were called to Kiel for a protest demonstration against the acquittal tomorrow.—Express News Service.

Date for Leopold

BRUSSELS, Wednesday. — The parliament to decide if King Leopold returns to the throne will be held on March 12.—A.P.

SERETSE : I STICK TO MY RIGHTS

SERETSE KHAMA, chief-designate of the Bechuanaland Bamangwato tribe, will in no circumstances renounce his right of succession.

This was said last night by his only fellow-tribesman in Britain, Phillip Sechele, a law student.

Sechele has discussed with Seretse the dispute over his status caused by his marriage to Ruth Williams, former London typist.

"Seretse feels he has his people behind him," said Sechele. "They are happy about him and Ruth, and Ruth is happy too.

"He is not likely to accept any alternative, because his people are not likely to accept it.

"They bitterly resent the South African Government's interference in their affairs."

Sechele said that Seretse has framed a progressive social and economic reform programme for his people, who are pro-British.

At the Colonial Office's request, Seretse yesterday moved from the West End to a North London address which is being kept secret.

Shah sends an invitation to Yvonne



PULSE-QUICKENER Yvonne ("Salome, Where She Danced"): de Carlo—Hollywood's most photographed — in colour beauty—has left Rome, it is reported, for Teheran, on the invitation of the Shah of Persia. He met her in Italy a few weeks ago.

6ft. gunman runs from a girl

A 6ft. gunman walked into Farnham Royal village post office, Bucks, yesterday, thrust his gun under the girls' and demanded money. Behind the counter 17-year-old Joyce Freeman took no notice. She pressed the alarm bell. The gunman ran away.

Fairbanks helps

VIENNA, Wednesday. — Douglas Fairbanks today picked up a British Army captain injured while skiing, and took him to an ambulance on his sledge.—Reuter.

PAGE ONE ENDPIECE

BASIC BOLONEY

A LETTER about Festival of Britain celebrations, sent by the Ministry of Health, came before Maidstone Parish Council in Kent yesterday. And they could not understand it. Said the clerk and schoolmaster, Mr. F. Strand : "Every sentence contradicts the previous one." Said the vicar, the Rev. V. Nicholls : "It's basic boloney."



Did you MACLEAN your teeth today ?



Of course I did !

MACLEANS
Peroxide Tooth Paste
makes teeth WHITE

16 Feb 1950 p4 Daily Express on H-bomb decision by Truman

CINEMA THEATRES

ACADEMY. Rossellini's The Miracle (A Ldn). Anna Magnani. Anne De La Nuit (A) J. L. Barrault. Progs 12.0 2.46, 5.32, 8.18

ASTORIA. Lee Genn. No Place for Jennifer (A). Showing 2.35, 5.45, 8.55. North West Stampede (cine) (U). Showing 1.20, 4.30, 7.40

CAMEO-POLYTECHNIC. That Others May Live (A) 2.40, 5.05, 9.0. "See this Magnificent production." Edge of the World.

CARLTON. "Kiss the Boys Goodbye" (U) and "The Affairs of Susan" (A). Cont. 10.20.

CURZON. (Gro. 3727.) Open 11.40. Bicycle Thieves (U) 12.0, 3.10, 6.15, 9.25. Marx Bros. A Night at the Opera (U) 1.35, 4.45, 7.50.

DOMINION. Terrina Young Come to the Stable (U). 2.35, 5.45, 8.55. Mark Stevens. Sand (Tech.) (U) 1.10, 4.20, 7.30.

EMPIRE. Cont. 10 a.m. (doors 8.45) to 11.30. Spencer Tracy, Katharine Hepburn, Adam's Rib (A). 10.10, 1.0, 3.55, 6.50, 9.45, & New Stage Show. "Cheers." 12.0, 2.50, 5.45, 8.40

GAUMONT. Haymarket. (Whi. 6688.) Gregory Peck in Twelve O'Clock High (U). Progs Commence 12.45, 3.10, 5.40 and 8.10

LEICESTER SQUARE TH. (Whi. 8252.) Ann Todd, Norman Wooland, Ivan Desny. Madeleine (A). Showing 1.10, 3.35, 6.05, 8.35.

LONDON PAVILION. Cont. from 10 a.m. Donald O'Connor in "Francis" (U). Also Robert Cummings in "Free For All" (U).

MARBLE ARCH PAVILION. (May 5113.) Gregory Peck in Twelve O'Clock High (U). Progs commence 12.45, 3.5, 5.35 and 8.5.

METROPOLE. (Vic. 4673.) The Blue Lamp (A). 12.25, 3.12, 6.10, 9.05. White Cradle Inn (A) 1.35, 4.35, 7.35. Doors 12.0

NEW GALLERY. Joseph Cotten, Valli, Orson Welles, Trevor Howard The Third Man (A). News, &c. Showing at 1.40, 4.5, 6.25, 8.45.

NEW VICTORIA. Come to the Stable (U) Sand (Tech.) (U) Ginger Nutt's Beer Brother (U) (Tech.). Progs.: 12.35, 4.5, 7.20.

ODEON. Leicester-square. (Whi. 6111.) Jack Warner, Jimmy Hanley, Dirk Bogarde. The Blue Lamp (A) Shows at 1.30, 4.0, 6.30, 9.5.

ODEON. Marble Arch. Pad. 8011. Trevor Howard, Anouk in "Golden Salamander" (U). Progs 1.5, 3.25, 5.45, 8.5.

ODEON. Tott. Ct.-rd. The Blue Lamp (A). 11.55, 2.55, 6, 9.05. White Cradle Inn (A). 1.30, 4.25, 7.25. Last Comp. Prog. 7.25.

PLAZA. Copper Canyon (U) (Technicolor). Progs. comm. 10.55, 1.04, 3.25, 5.44, 8.03.

RIALTO. Maurice Chevalier in "Le Rai" (A). Progs at 12.25, 3.5, 5.30, 8 p.m.

RITZ. Robert Donat, Greer Garson, "Goodbye, Mr. Chips" (U). 11.5, 1.30, 4.0, 6.35, 9.5.

STUDIO ONE. At 12.45, 3.40, 6.25, 9.35, M. Deniau: "The Glass Mountain" (A) & "Les Jeux Sont Faits" (A) (Fr.) At 2.10, 5.5, 8.0.

TIVOLI. Lex Genn. No Place for Jennifer (A) Showings 2, 5, 9. North West Stampede (U) (cine.). Showing 1.30, 4.30, 7.30.

WARNER. Ger. 3402. Dennis Morgan, Doris Day, Jack Carson "It's a Great Feeling" (U) Tech. Daily 10.50, 1.20, 4.0, 6.30, 9.55

DAILY EXPRESS

More than 4,000,000 sale every day

Opinion

He says 'stunt'

THE Atomic Committee of the United Nations—that is Mr. Bevin's answer to those who hope and seek for some way out of the terrible impasse into which the world is being led by the failure of statesmen and the success of scientists.

Any other attempt to deal with these appalling issues is, says Mr. Bevin, a "stunt."

But Mr. Bevin's remedy will satisfy nobody and certainly will bring no fears to an end.

Can you trust it?

SOME new initiative, some new upsurging of constructive good will is called for. Mr. Bevin does not meet that need by talking about the United Nations.

The United Nations is

'IF THE W

Election Not

by TREVOR

No 'lifts neighbo

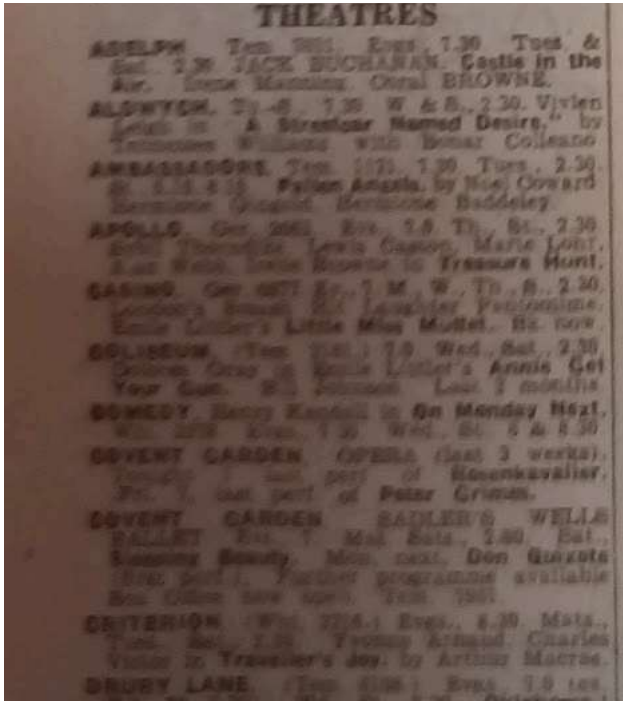
A "DIRTY" day next week could votes to the Soci one Socialist M.P.s told he fixed the date: "Don at Westminster if it's Polling Day."

The unhappy ones East Anglia and the Ea

Socialists bank more t Nature on Polling Day. alone sunshine, means than the advantage they equality in the matter of

The meteorologists were prefer *not* to forecast wha like on February 23. They forecast which would be to

Tories are more worr restrictions; they find them



THEATRES

ADELPHI Tem. 7611. Evgs. 7.30. Tues. & Sat. 2.30. JACK BUCHANAN. Castle in the Air. Book Musical. Oscar BROWNE.

ALDWYCH. Tp.-6. 7.30. W. & S., 2.30. Vivien Leigh in "A Streetcar Named Desire," by Tennessee Williams with Bonar Colleano.

AMBASSADORS. Tem. 1171. 7.30. Tues., 2.30. Mr. 5.15 & 8.15. Fallen Angels, by Noel Coward. Benson Gould, Hermione Baddeley.

APOLLO. Ger. 2663. Evs. 7.0. Th., Sat., 2.30. Evelyn Thornton, Lewis Casson, Marie Lohr. Last Week. Linda Rhodes in Treasure Hunt.

CASINO. Ger. 4317. Ev. 7.M., W., Th., S., 2.30. Laddie's Revue. Bill Lawrence Productions. Eddie Gilbert's Little Miss Muffet. Ba. now.

COLISEUM. Tem. 7161. 7.0. Wed., Sat., 2.30. Opens Dec. 26. Irving Berlin's Annie Get Your Gun. Ethel Merman. Last 7 months.

COMEDY. Barry Keyford in On Monday Next. Ev. 8.30. Wed., Sat. 5 & 8.30.

COVENT GARDEN. OPERA (last 3 weeks). Tonight (Tues.) last part of Rosenkavalier. Fri. (last part of Peter Grimes.

COVENT GARDEN. SADLER'S WELLS BALLET. Ev. 7. Mat. Sats., 2.30. Sat., Sleeping Beauty. Mats. next, Don Quixote. Ends part 1. Further programme available Box Office now open. Tem. 1661.

CRITERION. (Whi. 7734.) Evgs., 8.30. Mats., Tues. & Sat., 2.30. Yvonne Arnaud, Charles Victor in Traveller's Joy, by Arthur Macrae.

DRURY LANE. (Tem. 8108.) Evgs. 7.0 (ex.

simply the old League of Nations under a new name.'

It was the League that brought us to disaster last time. We might not have drifted into war in 1939 had it not been for foolish dependence on the League and the empty hopes that it aroused in men's minds.

If effective diplomatic action is to be denied on account of a specious reliance on this new League, our dangers will assuredly grow.

New men wanted

car used for taking voters to be registered for the purpo

Only one car is permitte every 1,500 voters in the co for every 2,500 in towns.

Car owners may take thei families, but it will be ille give lifts to neighbours.

Liberals are philosophical. prefer a fine day, but are on what difference a ba might make.

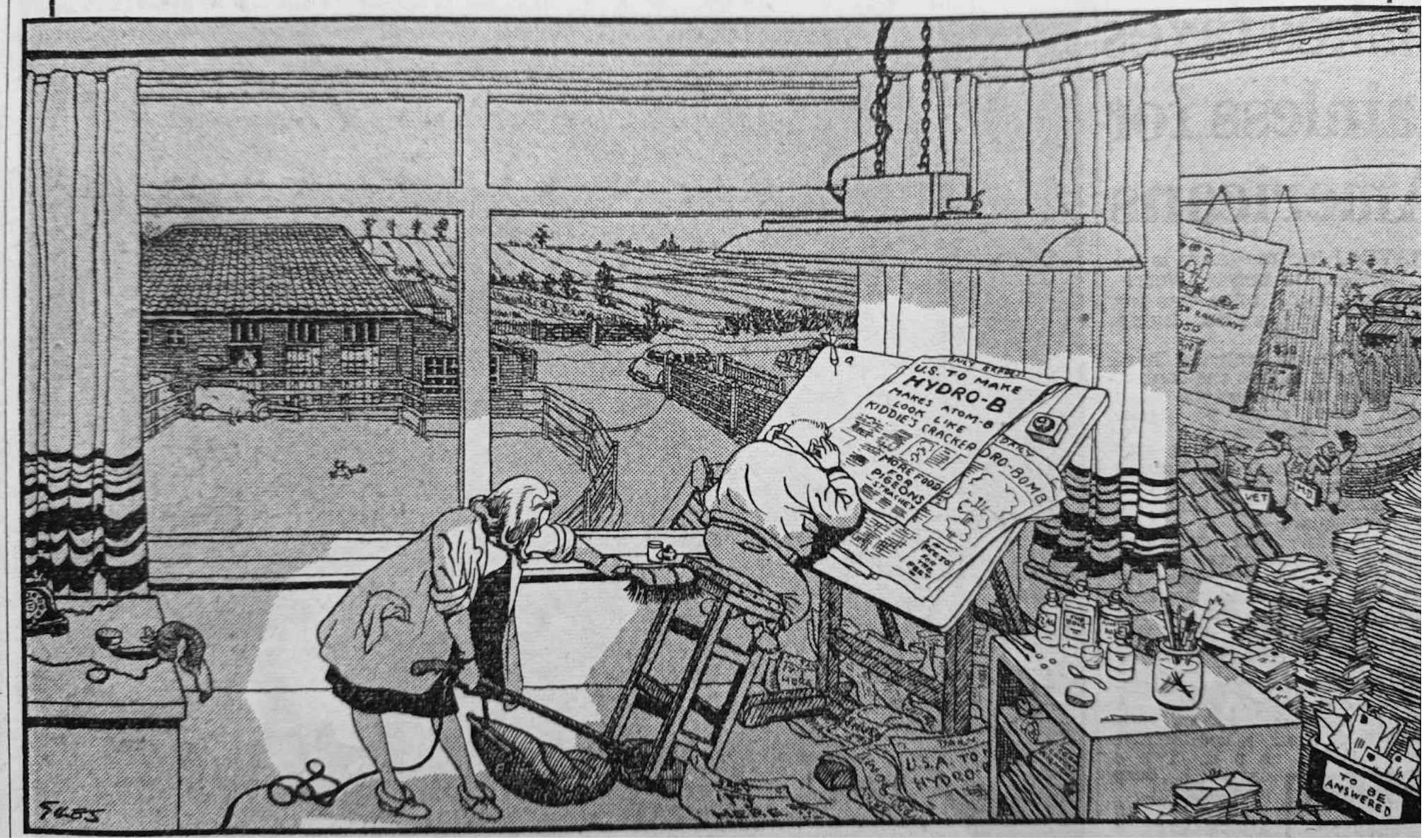
Communists would prefer a blizzard. They "Our folk will get t anything to the polling bo

SO DEPRESSIN

SOCIALIST op nose-dived ye The Radio broadcast had a de effect at Transport Hous

DAILY EXPRESS FRIDAY FEBRUARY 3 1950

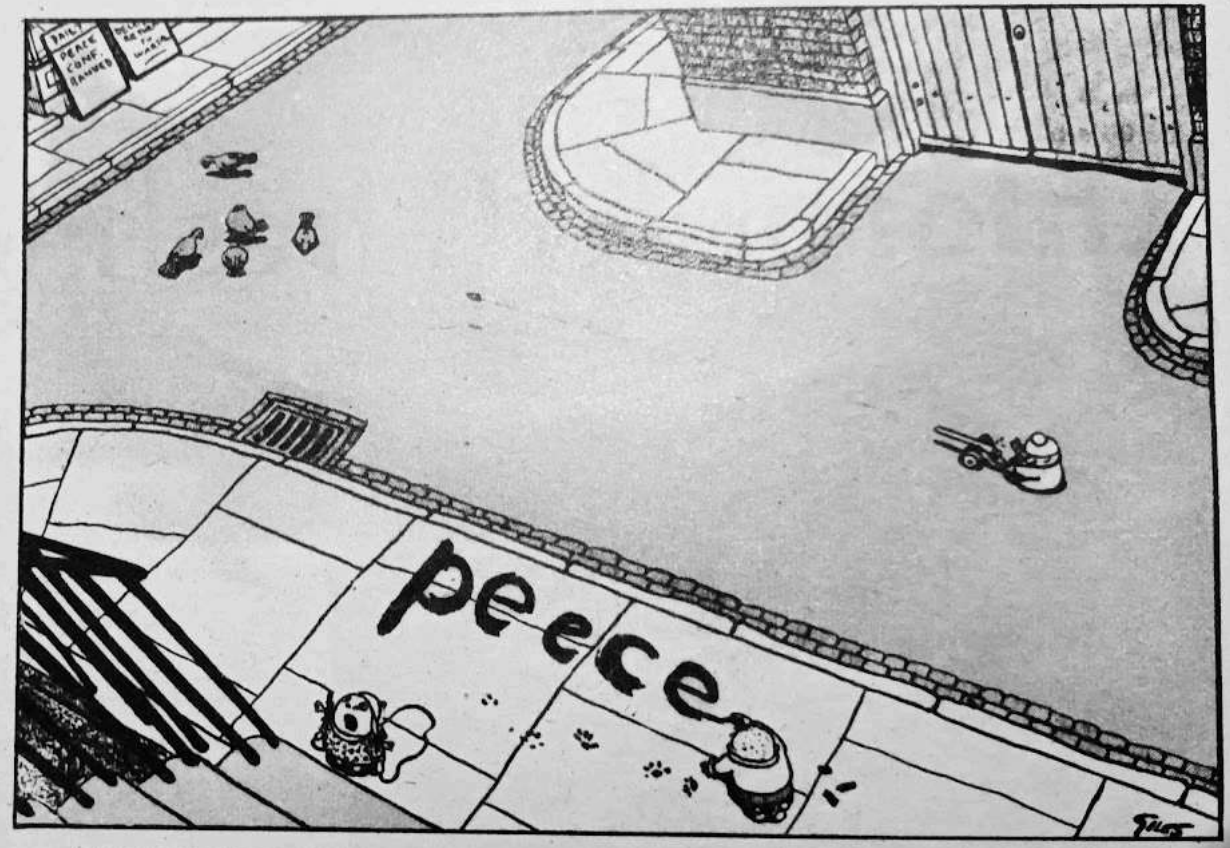
Self-Portrait . . . TRYING TO KEEP AWAY FROM IT ALL . . . by Giles



Picture Post, 4 October, 1952

IT HAPPENS HERE: THIRD INSTALMENT

Communist propaganda stunts are never as naïve as they seem. They aim to capture the limelight, bring in new members, sell more 'Daily Workers,' convince the few—and confuse the many. As the Nazis did, they tell big lies to get people to swallow small parts of them. Every little helps.

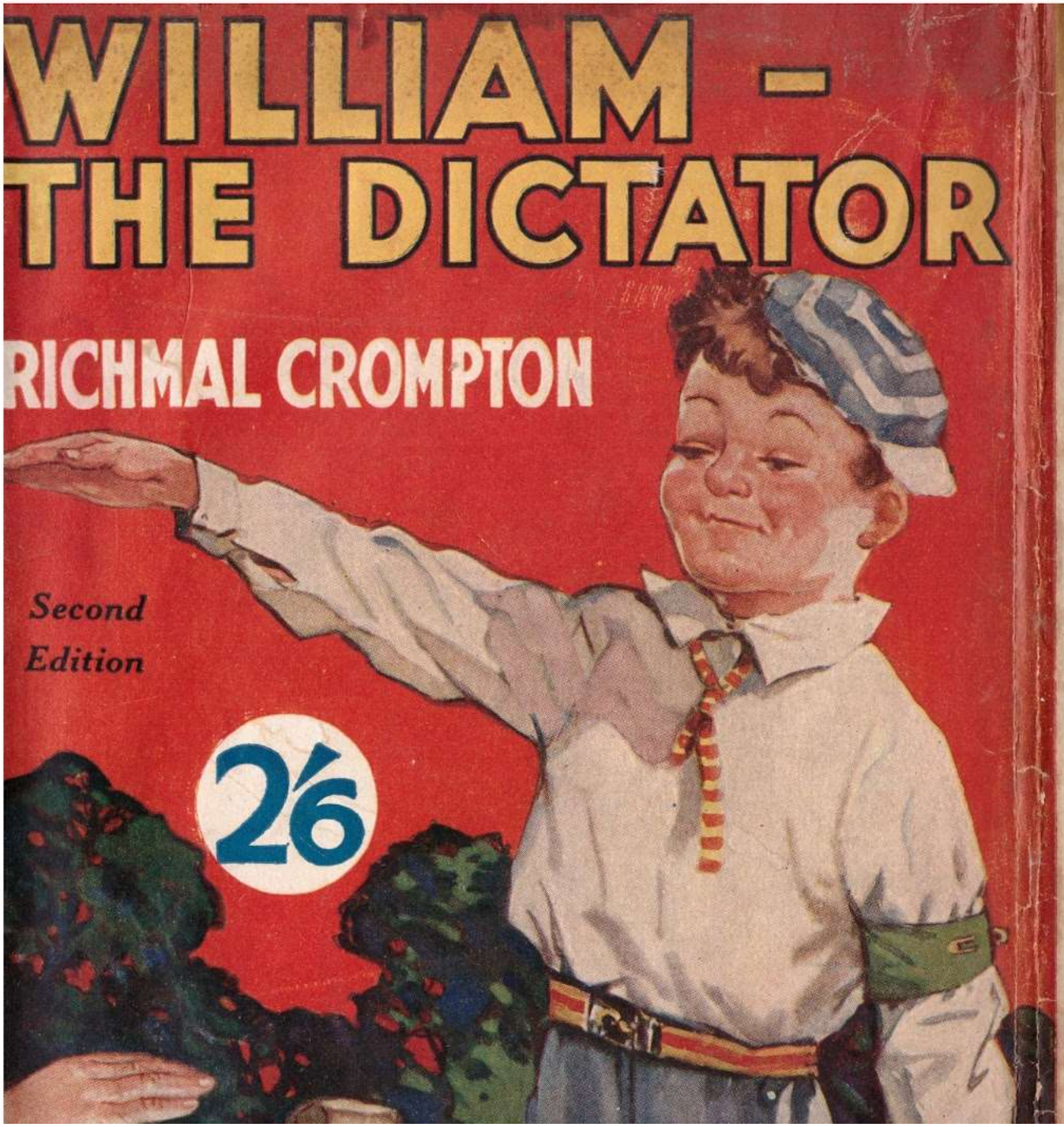


"MUM! CYRIL'S WROTE A WICKED WORD" *Giles sums up the Peace Campaign in the 'Daily Express'. Bob Darke, who helped organise it, condemns its hypocrisy and cynicism*

SOME OF THE PEOPLE — SOME OF THE TIME

ABOVE: 16 February 1950 Daily Express editorial on H Bomb problem due to the fact that the UN is another virtue signalling but really war mongering League of Nations (which oversaw Nazi appeasement and the outbreak of WWII); **however Fuchs had attended the April 1946 Super Conference during which the Russian version of the H-bomb involving isentropic radiation implosion of a separate low-density fusion stage (unlike Teller's later dense metal ablation rocket implosion secondary TX14 Alarm Clock and Sausage designs) were discussed and then given to Russia. The media was made aware only that Fuchs hade given the fission bomb to Russia. The FBI later visited Fuchs in British jail, showed him a film of Harry Gold (whom Fuchs identified as his contact while at Los Alamos) and also gave Fuchs a long list of secret reports to mark off individually so that they knew precisely what Stalin had been given. Truman didn't order H-bomb research and development because Fuchs gave Stalin the A-bomb, but because he gave them the H-bomb. The details of the Russian H-bomb are still being covered up by those who want a repetition of 1930s appeasement, or indeed the deliberate ambiguity of the UK Cabinet in 1914 which made it unclear what the UK would do if Germany invaded Belgium, allowing the enemy to exploit that ambiguity, starting a world war.** The key fact usually covered up (Richard Rhodes, Chuck Hansen, and the whole American "expert nuclear arms community" all misleadingly claim that Teller's Sausage H-bomb design with a single primary and a dense

ablator around a cylindrical secondary stage - uranium, lead or tungsten - is the "hydrogen bomb design") here is that **two attendees of the April 1946 Super Conference, the report author Egon Bretscher and the radiation implosion discoverer Klaus Fuchs** - were British, and both contributed key H-bomb design principles to the Russian and British weapons (discarded for years by America). Egon Bretscher for example wrote up the Super Conference report, during which attendees suggested various ways to try to achieve **isentropic compression of low-density fusion fuel** (a concept discarded by Teller's 1951 Sausage design, but used by Russia and re-developed in America on Nuckolls 1962 Ripple tests), and after Teller left Los Alamos, **Bretscher took over work on Teller's Alarm Clock layered fission-fusion spherical hybrid device before Bretscher himself left Los Alamos and became head of nuclear physics at Harwell, UK,**, submitting UK report together with Fuchs (head of theoretical physics at Harwell) which **led to Sir James Chadwick's UK paper on a three-stage thermonuclear Super bomb which formed the basis of Penney's work at the UK Atomic Weapons Research Establishment. While Bretscher had worked on Teller's hybrid Alarm Clock (which originated two months after Fuchs left Los Alamos), Fuchs co-authored a hydrogen bomb patent with John von Neumann, in which radiation implosion and ionization implosion was used. Between them, Bretscher and Fuchs had all the key ingredients. Fuchs leaked them to Russia and the problem persists today in international relations.**



WILLIAM— THE DICTATOR

by

RICHMAL CROMPTON

Here is the most hilarious collection of William stories yet—this time he makes himself Dictator of the Outlaws!

Terror reigns in the village when William, inspired by a political meeting, decides to elect himself The Leader. He meets with opposition when Hubert Lane, his arch-enemy, forms a rival party, but William comes out of the fray proving himself without a doubt DICTATOR of MIRTH and LAUGHTER.

His uproarious escapades as a television producer and Red Indian Chief and the fun caused by his misdirected efforts as a public benefactor, will ensure a hundred-per-cent poll in favour of William the Dictator, Richmal Crompton's latest and funniest creation



ILLUSTRATION: the threat of WWII and the need to deter it was massively derided by popular pacifism which tended to make "jokes" of the Nazi threat until too late (example of 1938 UK fiction on this above; Charlie Chaplin's film "The Great Dictator" is another example), so three years after the Nuremberg Laws and five years after illegal rearmament was begun by the Nazis, in the UK crowds of "pacifists" in Downing Street, London, support friendship with the top racist, dictatorial Nazis in the name of "world peace". The Prime Minister used underhand techniques to try to undermine appeasement critics like Churchill and also later to get W. E. Johns fired from both editorships of Flying (weekly) and Popular Flying (monthly) to make it appear everybody "in the know" agreed with his actions, hence the contrived "popular support" for collaborating with terrorists depicted in these photos. The same thing persists today; the 1920s and 1930s "pacifist" was *also driven by "escalation" and "annihilation" claims explosions, fire and WMD poison gas will kill everybody in a "knockout blow", immediately any war breaks out.*

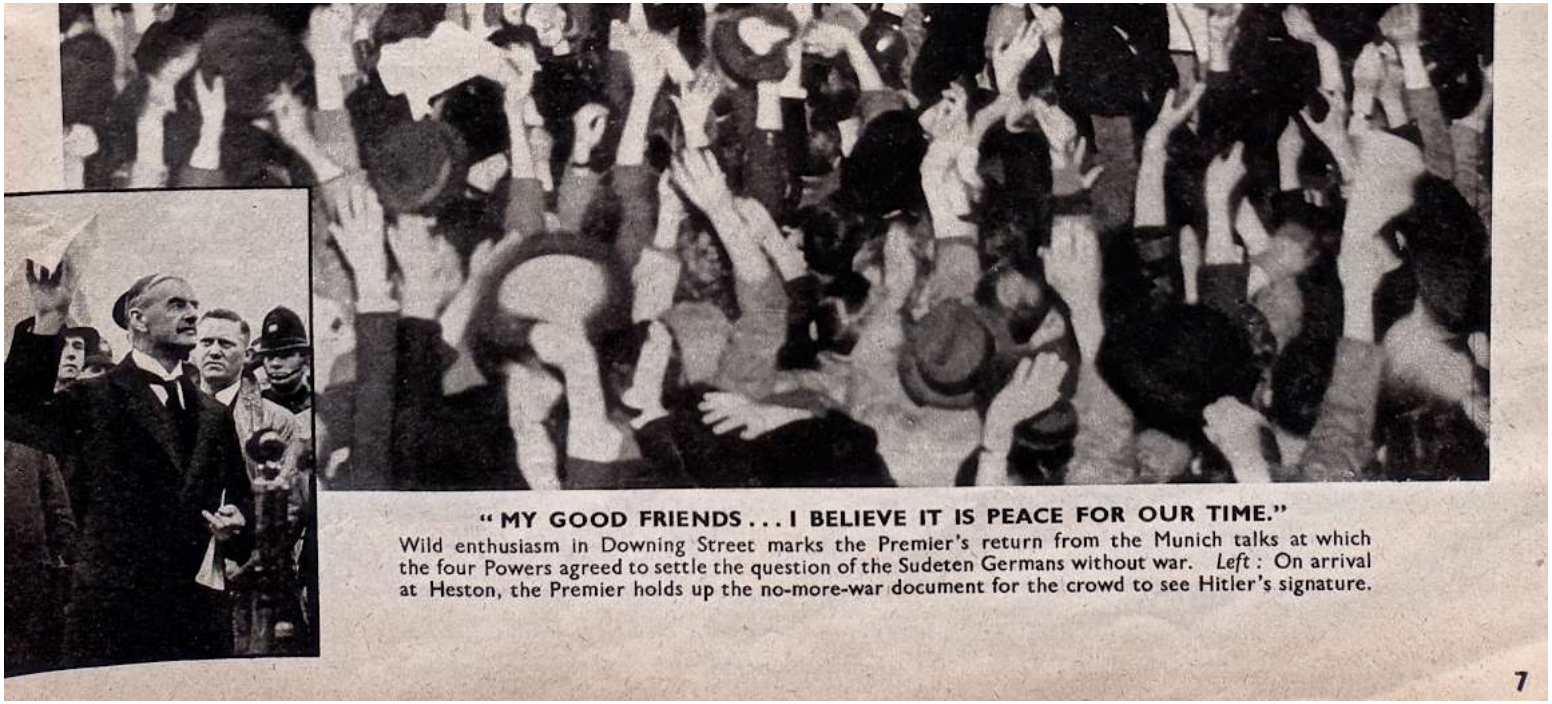
Update (4 January 2024): on the important world crisis, **https://vixra.org/abs/2312.0155 gives a detailed review of "Britain and the H-bomb" (linked here), and why the "nuclear deterrence issue" isn't about "whether we should deter evil", but precisely what design of nuclear warhead we should have in order to do that cheaply, credibly, safely, and efficiently without guaranteeing either escalation or the failure of deterrence. When we disarmed our chemical and biological weapons, it was claimed that the West could easily deter those weapons using strategic nuclear weapons to bomb Moscow (which has shelters, unlike us). That failed when Putin used sarin and chlorine to prop up Assad in Syria, and Novichok in the UK to kill Dawn Sturgess in 2018. So it's just not a credible deterrent to say you will bomb Moscow if Putin invades Europe or uses his 2000 tactical nuclear weapons.** An even more advanced deterrent, **the 100% clean very low yield (or any yield) multiplicative staged design without any fissile material whatsoever, just around the corner. Clean secondary stages have been proof-tested successfully for example in the 100% clean Los Alamos Redwing Navajo secondary, and the 100% clean Ripple II secondary tested 30 October 1962, and the laser ignition of very tiny fusion capsules to yield more energy than supplied has been done on 5 December 2022 when a NIF test delivered 2.05 MJ (the energy of about 0.5 kg of TNT) to a fusion capsule which yielded 3.15 MJ, so all that is needed is to combine both ideas in a system whereby suitably sized second stages - ignited in the first place by a capacitative charged circuit sending a pulse of energy to a suitable laser system (the schematic shown is just a sketch of principle - more than one laser would possibly be required for reliability of fusion ignition) acting on tiny fusion capsule as shown - are encased to two-stage "effective primaries" which each become effective primaries of bigger systems, thus a geometric series of multiplicative staging until the desired yield is reached. Note that the actual tiny first T+D capsule can be compressed by one-shot lasers - compact lasers used way beyond their traditional upper power limit and burned out in a firing a single pulse - in the same way the gun assembly of the Hiroshima bomb was based on a one-shot gun. In other words, forget all about textbook gun design. The Hiroshima bomb gun assembly system only had to be fired *once,* unlike a field artillery piece which has to be ready to be fired many thousands of times (before metal fatigue/cracks set in). Thus, by analogy, the lasers - which can be powered by ramping current pulses from magnetic flux compressor systems - for use in a clean bomb will be much smaller and lighter than current lab gear which is designed to be used thousands of times in repeated experiments. The diagram below shows cylindrical Li6D stages throughout for a compact bomb shape, but spherical stages can be used, and once a few stages get fired, the flux of 14 MeV neutrons is sufficient to go to cheap natural LiD. To fit it into a MIRV warhead, the low density of LiD constrains such a clean warhead will have a low nuclear yield, which means a tactical neutron deterrent of the invasions that cause big wars; a conversion of incredible strategic deterrence into a more credible combined strategic-tactical deterrent of major provocations, not just direct attacks.** It should also be noted that in 1944 von Neumann suggested that T + D inside the core of the fission weapon would be compressed by "ionization compression" during fission (where a higher density ionized plasma compresses a lower density ionized plasma, i.e. the D + T plasma), an idea that was - years later - named the Internal Booster principle by Teller; see Frank Close, "Trinity", Allen Lane, London, 2019, pp158-159 where Close argues that during the April 1946 Superbomb Conference, Fuchs extended von Neumann's 1944 internal fusion boosting idea to an external D + T filled BeO walled capsule:

"Fuchs reasoned that [the very low energy, 1-10 kev, approximately 10-100 lower energy than medical] x-rays from the [physically separated] uranium explosion would reach the tamper of beryllium oxide, heat it, ionize the constituents and cause them to implode - the **'ionization implosion'** concept of von Neumann but now applied to deuterium and tritium contained within beryllium oxide. To keep the radiation inside the tamper, Fuchs proposed to enclose the device inside a casing impervious to radiation. The implosion induced by the radiation would amplify the compression ... and increase the chance of the fusion bomb igniting. The key here is 'separation of the atomic charge and thermonuclear fuel, and compression of the latter by radiation travelling from the former', which constitutes **'radiation implosion'**." (This distinction between von Neumann's "**ionization implosion**" INSIDE the tamper, of denser tamper expanding and thus compressing lower density fusion fuel inside, and Fuchs' OUTSIDE capsule "**radiation implosion**", is key even today for isentropic H-bomb design; it seems Teller's key breakthroughs were not separate stages or implosion but rather radiation mirrors and ablative recoil shock compression, where radiation is used to ablate a dense pusher of Sausage designs like Mike in 1952 etc., a distinction not to be confused for the 1944 von Neumann and 1946 Fuchs implosion mechanisms!

PICTURE POST

No.2. Vol. I October 8, 1938





"MY GOOD FRIENDS . . . I BELIEVE IT IS PEACE FOR OUR TIME."

Wild enthusiasm in Downing Street marks the Premier's return from the Munich talks at which the four Powers agreed to settle the question of the Sudeten Germans without war. *Left*: On arrival at Heston, the Premier holds up the no-more-war document for the crowd to see Hitler's signature.

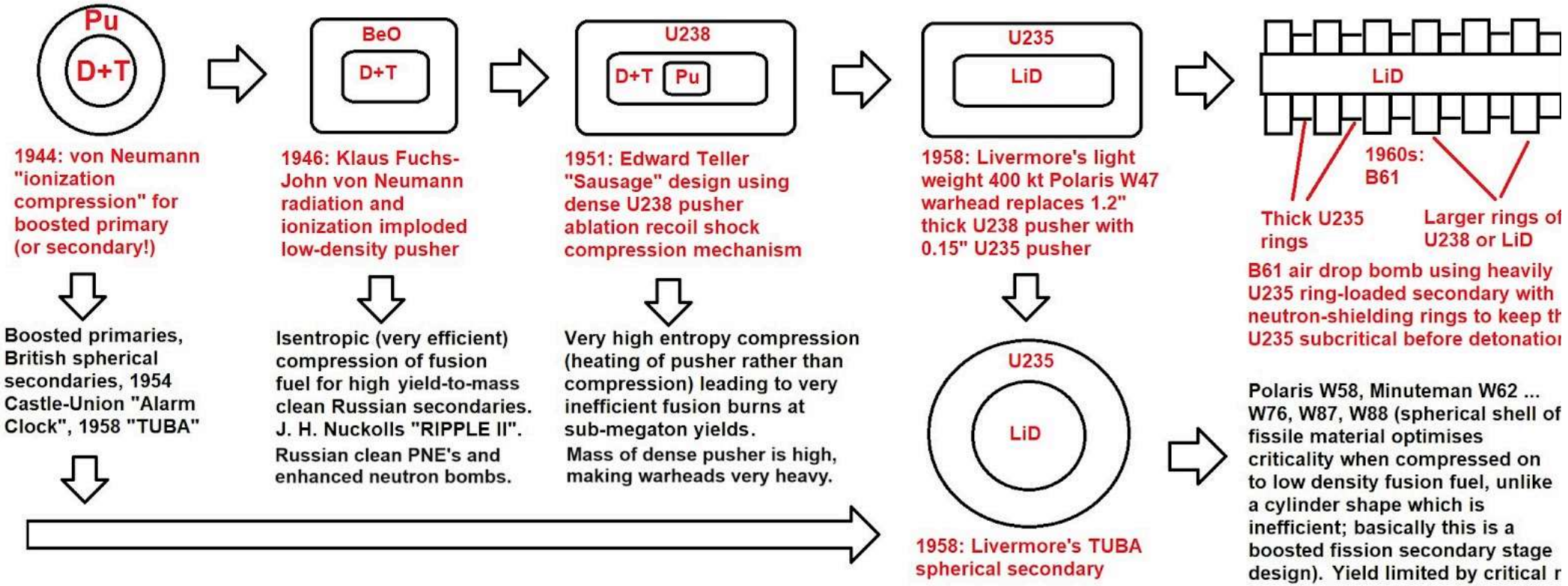
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It appears Russian H-bombs used von Neumann's "ionization implosion" and Fuchs's "radiation implosion" for RDS-37 on 22 November 1955 and also in their double-primary 23 February 1958 test and subsequently, where their fusion capsules reportedly contained a BeO or other low-density outer coating, which would lead to quasi-isentropic compression, more effective for low density secondary stages than purely ablative recoil shock compression. This accounts for the continuing classification of the **April 1946 Superbomb Conference (the extract of 32 pages linked here is so severely redacted** that it is less helpful than the **brief but very lucid summary of its technical content, in the declassified FBI compilation of reports concerning data Klaus Fuchs sent to Stalin, linked here**!). Teller had all the knowledge he needed in 1946, but didn't go ahead because he made the stupid error of killing progress off by his own "no-go theorem" against compression of fusion fuel. Teller did a "theoretical" calculation in which he claimed that compression has no effect on the amount of fusion burn because the compressed system is simply scaled down in size so that the same efficiency of fusion burn occurs, albeit faster, and then stops as the fuel thermally expands. This was wrong. Teller discusses the reason for his great error in technical detail during his tape-recorded interview by Chuck Hansen at Los Alamos on 7 June 1993 (C. Hansen, Swords of Armageddon, 2nd ed., pp. II-176-7):

"Now every one of these [fusion] processes varied with the square of density. If you compress the thing, then in one unit's volume, each of the 3 important processes increased by the same factor ... Therefore, compression (seemed to be) useless. Now when ... it seemed clear that we were in trouble, then I wanted very badly to find a way out. And it occurred to be than an unprecedentedly strong compression will just *not* allow much energy to go into radiation. Therefore, something *had* to be wrong with my argument and then, you know, within minutes, I knew what must be wrong ... [energy] emission occurs when an electron and a nucleus collide. Absorption does *not* occur when a light quantum and a nucleus ... or ... electron collide; it occurs when a light quantum finds an electron and a nucleus together ... it does not go with the square of the density, it goes with the cube of the density." (This very costly theoretical error, wasting five years 1946-51, could have been resolved by experimental nuclear testing. There is always a risk of this in theoretical physics, which is why experiments are done to check calculations before prizes are handed out. The ban on nuclear testing is a luddite opposition to technological progress in improving deterrence.)

(This 1946-51 theoretical "no-go theorem" anti-compression error of Teller's, **which was contrary to the suggestion of compression at the April 1946 superbomb conference as Teller himself refers to on 14 August 1952,** and which was corrected only by comparison of the facts about compression validity in pure fission cores in Feb '51 after Ulam's argument that month for fission core compression by lens focussed primary stage shock waves, did not merely lead to Teller's dismissal of vital compression ideas. *It also led to his false equations - exaggerating the cooling effect of radiation emission - causing underestimates of fusion efficiency in all theoretical calculations done of fusion until 1951!* For this reason, Teller later repudiated the calculations that allegedly showed his Superbomb would fizzle; he argued that if it had been tested in 1946, the detailed data obtained - regardless of whatever happened - would have at least tested the theory which would have led to rapid progress, because the theory was wrong. The entire basis of the cooling of fusion fuel by radiation leaking out was massively exaggerated until Lawrence Livermore weaponeer John Nuckolls showed that there is a very simple solution: use baffle re-radiated, softened x-rays for isentropic compression of low-density fusion fuel, e.g. very cold 0.3 kev x-rays rather than the usual 1-10 kev cold-warm x-rays emitted directly from the fission primary. Since the radiation losses are proportional to the fourth-power of the x-ray energy or temperature, losses are virtually eliminated, allowing very efficient staging as for Nuckolls' 99.9% 10 Mt clean Ripple II, detonated on 30 October 1962 at Christmas Island. **Teller's classical Superbomb was actually analyzed by John C. Solem in a 15 December 1978 report, *A modern analysis of Classical Super,* LA-07615, according to a Freedom of Information Act request filed by mainstream historian Alex Wellerstein, FOIA 17-00131-H, 12 June 2017; according to a list of FOIA requests at https://www.governmentattic.org/46docs/NNSAfoiaLogs_2016-2020.pdf**. However, a google search for the documents Dr Wellerstein requested shows only a few at the US Gov DOE Opennet OSTI database or otherwise online yet e.g. **LA-643 by Teller, *On the development of Thermonuclear Bombs* dated 16 Feb. 1950**. The page linked **here stating that report was "never classified" is mistaken!** One oddity about Teller's anti-compression "no-go theorem" is that the even if fusion rates were independent of density, you would still want compression of fissile material in a secondary stage such as a radiation imploded Alarm Clock, because the whole basis of implosion fission bombs is the benefit of compression; another issue is that even if fusion rates are unaffected by density, inward compression would still help to delay the expansion of the fusion system which leads to cooling and quenching of the fusion burn.)

History of basic concepts in the evolution of secondary stage designs used in deployed nuclear weapons



DAILY EXPRESS

No. 15,509 THURSDAY MARCH 2 1950 CONTROLLING SHAREHOLDER LORD BEAVERBROOK Weather: Fair or fine One Penny

ATOM 1 'Man in the know' helped Russia on

ATOM 2 'The Fox' made no mistake in 7 years

TEA Price going up—supplies going down

ATTLEE Socialists told: Revolts are luxuries now

FUCHS GAVE BOMB TO RUSSIA

Survived purges by MI5 and got promotion

CLEVEREST SPY EVER KNOWN

By CHAPMAN PINCHER

IN 90 minutes at the Old Bailey yesterday, a riddle was solved: How did Russia make the atomic bomb so quickly? Dr. Klaus Emil Julius Fuchs, confidant and leading member of Britain's atom team, who began a 14-year jail sentence last night, gave them the know-how.

Almost from the first exciting moments in 1942 when British scientists were proving an atomic bomb was feasible, Fuchs had been fully in the know.

After release from 18B internment he joined another ex-German, Berlin-born Professor Rudolf Peierls, at Birmingham University. The value of the knowledge he built up at this stage is shown by this official statement:—

"Professor Peierls, assisted by Dr. Fuchs and others, used the experimental data provided by Liverpool and Cambridge to calculate the critical size of the bomb. They examined the mechanics of the reaction, and calculated the amount of energy likely to be released in an atomic explosion, studying the conditions for increasing the amount."

THE KREMLIN'S GUIDE

The reports Fuchs helped to prepare—and may have passed on to Soviet agents—had abstruse titles like "Critical radius and time constant of a sphere embedded in a spherical scattering container."

To his scientific counterpart in Moscow such titles promised more detailed evidence of the shape and size of the explosive atom-bomb core.

For two years—1944 to 1946—Fuchs worked in America's Los Alamos atom station, where the bombs were designed and built.

There he picked up those secrets of bomb mechanics about which the Americans are most sensitive.

Since then he has been at Harwell, in Berkshire—the hub of British atom research. As head of the theoretical physics department the latest experimental results from many of the most closely guarded laboratories would be consulted to hand.

THE KREMLIN'S EAR

How did Fuchs survive security purges to become the most successful spy in history?

On his own confession he has been for seven years the Politburo's representative inside—the most secret atomic establishments of the West.

He was the Kremlin's ear at many confidential conferences. With the steady stream of expertly selected facts he admittedly supplied, the Russians can never have been behind.

Yet only nine months ago, while lesser intelligences were being combed out of defence jobs for long-past membership of the Communist Party, Fuchs was promoted. He was given a £1,800-a-year job.

The inescapable fact is that Fuchs, the brilliant physicist, this man whose name in German means The Fox, was the cleverest spy who ever operated in Britain. In seven active and dangerous years he never made a mistake.

The trail that led to his arrest was picked up during routine counter-espionage in the U.S.

Only when he felt the slackness of the security net being taken up did he show the brittle signs of the amateur agent.

HE CONFESSED

Where a more harshly disciplined spy would have kept quiet, he panicked to Harwell security chief Henry Arnold with a confession. He said that "he had communicated a great deal of information to the enemy."

Fuchs did not hand on his secrets on the principle that scientists have a sacred duty to spread their discoveries. On his own initiative he contacted Russian agents for the precise purpose of furthering the expansion—at whatever cost to the rest of the world—of Stalin's Communism.

Fuchs had not altogether escaped security attention.

A picture of the top ten scientists

PAGE TWO, COL. SIX

Fuchs prepared this atom report in 1943

EFFECT OF A SCATTERING CONTAINER ON THE CRITICAL RADIUS AND TIME CONSTANT

K. Fuchs.

SECRET

1. Introduction

We consider in the following the critical radius and the time constant of a chain reaction in a sphere surrounded by a spherical container. We assume essentially that the mean free path is the same in the sphere and the container. For some purposes

THIS is the sort of information Fuchs passed on . . . This page of a Government report on research to discover the best shape and size for the explosive core of an atom bomb. Prepared by Dr. Klaus Fuchs in 1943 for the British atom project—then code-named Tube Alloys—it is no longer secret.

Consider now a very thin container and put

$$f(r) = f_0(r) + f_1(r)\,\delta r_2 \qquad (8.3) \qquad \rho = \rho_0 + \rho_1\,\delta r_2 \qquad \delta r_2 = r_2 - r_1 \ll r_1$$

Subtracting (8.2) from (8.1) and retaining only terms of first order in δr_2 one finds

$$f_1(r) = \tfrac{1}{2}\rho_0 \int_{\frac{r_1}{r_2}}^{r_1} K(r,r')f_1(r')\,dr' + \tfrac{1}{2}\rho_0 \int_{r_1}^{\infty} K(r,r')\,f_0(r')\,dr' + \tfrac{1}{2}\rho_1 \int_0^{\infty} K(r,r')f_0(r')$$

Multiply (8.4) with f_0 and integrate over the sphere; using the

From the same Government report . . . showing the intricate mathematical equations and the symbols in which Fuchs dealt.

separation potential gained in producing the fraction dx lost in re-mixing. In any one unit the gain (1.6)

$$\sum \frac{b_\mu \delta_\mu^2}{2\left[a(1-a)\right]^2}$$

That lost by re-mixing is

$$\sum \frac{b_\mu (\delta_\mu - \mu \frac{d\delta}{dn})^2}{2\left[a(1-a)\right]^2}$$

Hence the difference is

$$\sum \frac{b_\mu \mu \left(2\delta\frac{d\delta}{dn} - \mu\left(\frac{d\delta}{dn}\right)^2\right)}{2\left[a(1-a)\right]^2}$$

Top-secret calculations by Klaus Fuchs and Professor Rudolf Peierls to decide the best type of plant for making uranium 235—the atomic explosive used in the Hiroshima bomb. The problems involved the use of the most specialised mathematics.

SINGLE WORD IN CODE BETRAYED FUCHS

By PERCY HOSKINS

A CODE name scrawled in a diary is believed to have started detectives on the trail which led to the arrest of Dr. Fuchs.

How the diary came into the hands of Secret Service officers in New York will not be disclosed—"not now or ever," say the G-men—but when the authorities saw the code name pencilled on one of its pages, memory was jogged.

The same name was mentioned in the case of Dr. Alan Nunn May, now serving 10 years for giving away atom secrets.

Arrangements were made for a meeting between Nunn May and a Russian agent outside the British Museum. The agent was to identify himself with the code name after asking the way to the Strand.

Other entries in the diary—some in code—helped the investigators to trace the atom leakage to Fuchs.

Spies are recruited from inconspicuous types of people, and it is usually a seemingly trivial detail like this scrawled name which first attracts the counter-espionage agents.

24-HOUR WATCH

Once a man is suspected of spying, he is never lost sight of. Relays of watchers note the people he contacts. They, too, are followed.

Nunn May's house in Stratford-terrace, Kensington, was under observation from October 1945 till February 1946, when he was arrested. From the moment he left home in the morning until he returned at night, he was never out of a watcher's sight.



FUCHS'S ONLY RELATIVE IN BRITAIN
Giesler Wagner, with Mr. Catchpool, Quaker prison-visitor.

DEARER TEA—AND CUT IN RATION?

Express Staff Reporter

TEA prices are likely to rise, perhaps by 1s 6d. a lb., a London tea broker said yesterday.

He expects the rise because of a Government bulk-contract argument going on in Ceylon—which may threaten half an ounce of the 2½oz. tea ration.

Ceylon wants to cut what she sends us from 100 million lb. to 100 million lb.—and charge more. What the subsidy-pegged ration increase would be passed on to the housewife. At 2s. 4d. a lb. she pays an average 2½ ozs. a lb. The subsidy saves her £11,000,000 and costs the country £11,000,000.

The Food Ministry may consider restoring free tasting and reopening London's tea auction mart.

Milk sales drop—too dear?

People are drinking less milk since it was de-rationed on January 15. Consumption has fallen from the three pints a week to two and a half pints a week. An official of the National Dairymen's Association said: "Maybe it is too dear at 8d. a pint."

No petrol rush

CANBERRA, Wednesday.—Petrol stocks in Australia have risen by 14 per cent. since the Tory Government took office, Prof. Harold McLeay, Commonwealth Minister for Supply, says. There is now little sugar rationing ended.

Judges step up jail for violence

Express Staff Reporter

JUDGES going on Assize have been recommended to pass heavier prison sentences on men and youths convicted of serious cases of violence.

Lord Goddard, the Lord Chief Justice, called a meeting of judges in his private room at the Law Courts to hear the proposal.

The step was taken because of the increase in violence since flogging and birching were abolished by Parliament 18 months ago.

Lord Goddard himself dealt with two cases at the Old Bailey yesterday.

In Case No. 1 he sentenced 17-year-old James Rodney Watson to SEVEN YEARS' JAIL and 15-year-old Roger Norman Eves to seven years' detention for attacking and robbing a woman in a double-decker tram near Bull's Head Station, London.

He told them: "It is not for me to criticise the wisdom of Parliament which prevents me doing what I might have done a few months ago. I could then have had you whipped."

In Case No. 2 he sentenced 17-year-old ... motor driver Clement Palumbo to TEN YEARS for robbing Mrs. Adelaide Richer, a 72-year-old widow, with a cosh at Chelsea home.

"The amount of violence that is going on is shocking," Lord Goddard told him. "I believe largely due to the fact that young men know you can't now be whipped. The only alternative is a long sentence."

At Stafford Assizes, Mr. ... O'Shea, aged 25, got SIX YEARS' ... in prison for striking a 17-year-old girl in the face with a broken bottle.

4.30 a.m. LATEST MUSEUM RAIDER HOAXED

CAPE TOWN, Wednesday.—... Raider stole "diamonds" from Cape Town Museum. All were glass replicas — ... of the Cullinan diamond. — Express News Service.

FAMILY GASSED

NEW YORK, Wednesday.—Mrs. Arline Kraeuller, aged 34, and her five children, aged eight months to 11 years, were found gassed in their home in West Orange, New Jersey, today.

CENtral 8000

BRIDES KICK CLERKS AT AIRPORT

Express Staff Reporter: New York, Wednesday

WOMEN screamed and kicked and then shouted and pounded their fists on counters today when it was announced at Idlewild, New York's airport, that Flight No. 100—for London—would be delayed indefinitely.

Fifty-seven passengers were waiting to board the plane. They had waited two days.

Men and women—some of them war brides—advanced on the clerks in the Pan-American Airways office.

One of the women, Mrs. Margaret Scholz, returning to Britain to see her mother who is ill, put her year-old baby into a clerk's arms. "Here, she said. "You take care of him. I have been doing it for two days."

Some of the women kicked out at the clerks.

The passengers made a start for London—an hour and a half late—on Monday. But the plane had engine trouble and turned back.

WAITED ALL DAY

Passengers were put up for the night in an hotel. Yesterday they went back to Idlewild and waited all day. But still the plane would not go.

Then they heard Pan-American was sending a plane to London—but it was full and was for luxury fare payers only.

Trouble broke out. Officials became so harassed that they put Mrs. Scholz and another war bride, Mrs. Daisy MacAndrews, and her two children in the "full" plane.

Others went out two hours later—just a minute or two before the police arrived to restore order.

Cannon-shells in the coal

Eleven cannon shells six inches long were found by men unloading a coal wagon at Canning Town, E., yesterday. Bomb disposal experts will examine them today. A Coal Board official said: "They may be from queer-coal warnings or the wagon may have been used earlier for arsenal metal."

Man races pony

Willie Macfarlane, one-time champion sprinter, now 45, raced a pony and trap over 100 yards for a bet at Stoppes, Lanarkshire, last night. He won by 15 yards in ten and nine-tenth seconds.

Sextuplets

BRUSSELS, Wednesday.—Sextuplets—four boys and two girls—have been born to a 32-year-old African woman in the Belgian Congo. All are well.

'I know something of envoy's death'

NEW YORK, Wednesday.—Russel McKichan, a young American student on his way to New York in the Queen Mary, said by radio-telephone tonight: "I have important information about the death of Captain Eugene Kaiser, Captain Karpe, U.S. naval attache in Bucharest, was found in an Austrian railway tunnel. McKichan dined with him on the train."—Express News Service.

Mr. Joint delays meat talks

Anglo-Argentine negotiations on meat prices were due to start in Buenos Aires yesterday. But Mr. Edgar J. Joint, Commercial Minister to the British Embassy, is still in London. A Treasury ...



Attlee will take it and ling on

By GUY EDEN

M.P.s assembled at Westminster yesterday the first time, Tories calling this the "The Other-Check ernment.

sine known that the ...ment intends to put ...ish almost any rebuff. to remain in office as ...e possible.

...me time the Tories will ... to bring down the ...ons for some months ... — unless they are ...ely provoked by some ...rial issue.

...was held in the lobbies ... that the Government ... office into next year. ...ng of Socialist M.P.s ... before Parliament. Mr. Attlee and Mr. ...rrison both stressed ...ssue discipline is

them? No

...ally of Mr. Ayerill ...d the Government to ...d with its full ... policy, defying ...Liberals to bring it

...ractically no support. ... told the M.P.s: ... afford the luxury

...olicy of the Govern... the support of the ... to avoid defeat ...ossible by trimming ... Any defeats that ... will be ignored, ...are on vital issues. ...ion of Government ... be taken as cause ...tion unless the ...se to advance.

...ll avoid any new ... proposals — there ... to take over the ... and meat trades. ...al has to be made ...e-bench members ... right to bring in ... are given the ...back-bencher may ... to repeal the Act ...e steel industry. ...last Parliament. ...g a crisis for the

em? No

... will be to keep ...n in office to deal ... and financial ...ich may stem ...ded reduction of ...fter June.

...hat during the ...gh, members of ...ache extravagant ...handling future ...that they should ...from having to ...

...ressed a meet... ...on M.P.s — the ... — yesterday. ...rording to an ... ... that the ...have regard to ...ests and the ...sals of the ...n disclosed."

...an that there

ABOVE: **the FBI file on Klaus Fuchs contains a brief summary of the secret April 1946 Super Conference at Los Alamos which Fuchs attended, noting that compression of fusion fuel was discussed by Lansdorf during the morning session on 19 April, attended by Fuchs, and that: "Suggestions were made by various people in attendance as to the manner of minimizing the rise in entropy during compression." This fact is vitally interesting, since it proves that an effort was being made then to secure isentropic compression of low-density fusion fuel in April 1946, sixteen years before John H. Nuckolls tested the isentropically compressed Ripple II device on 30 October 1962, giving a 99.9% clean 10 megaton real H-bomb!** So the Russians were given a massive head start on this isentropic compression of low-density fusion fuel for hydrogen bombs, used (according to Trutnev) in both the single primary tests like RDS-37 in November 1955 and also in the double-primary designs which were 2.5 times more efficient on a yield-to-mass basis, tested first on 23 February 1958! According to the FBI report, the key documents Fuchs gave to Russia were LA-551, *Prima facie proof of the feasibility of the Super, 15 Apr 1946* and the LA-575 *Report of conference on the Super, 12 June 1946.* Fuchs also handed over to Russia his own secret Los Alamos reports, such as LA-325, *Initiator Theory, III. Jet Formation by the Collision of Two Surfaces, 11 July 1945, Jet Formation in Cylindrical Implosion with 16 Detonation Points, Secret, 6 February 1945,* and *Theory of Initiators II, Melon Seed, Secret, 6 January 1945*. Note the reference to Bretscher attending the Super Conference with Fuchs; **Teller in a classified 50th anniversary conference at Los Alamos on the H-bomb claimed that after he (Teller) left Los Alamos for Chicago Uni in 1946, Bretscher continued work on Teller's 31 August 1946 "Alarm Clock" nuclear weapon (precursor of the Mike sausage concept etc) at Los Alamos;** it was this layered uranium and fusion fuel "Alarm Clock" concept which led to the departure of Russian H-bomb design from American H-bomb design, simply because Fuchs left Los Alamos in June 1946, well before Teller invented the Alarm Clock concept on 31 August 1946 (**Teller remembered the date precisely simply because he invented the Alarm Clock on the day his daughter was born, 31 August 1946! Teller and Richtmyer also developed a variant called "Swiss Cheese", with small pockets or bubbles of expensive fusion fuels, dispersed throughout cheaper fuel, in order to kinder a more cost-effective thermonuclear reaction; this later inspired the fission and fusion boosted "spark plug" ideas in later Sausage designs; e.g. security cleared Los Alamos historian Anne Fitzpatrick stated during her 4 March 1997 interview with Robert Richtmyer, who co-invented the Alarm Clock with Teller, that the Alarm Clock evolved into the spherical secondary stage of the 6.9 megaton Castle-Union TX-14 nuclear weapon!**).

SECRET

This document consists of 12 pages
No. 4 of 7 Copies, Series

EVALUATION OF FUCHS CASE
BY COMMITTEE OF SENIOR RESPONSIBLE REVIEWERS

1. The Committee of Senior Responsible Reviewers has examined Info Memo 273/9 (Perrin Report) as well as Info Memo 273/10 (Fuchs statement) and discussed the technical evidence in these documents.

Gaseous diffusion:

However, Fuchs apparently did transmit the fact, according to his own confession, that the barriers would be made of "sintered" nickel.

However, he was familiar with the ideas and early operating designs of the composite and levitated bombs. It should be recalled that

Fuchs was at April 1946 Teller H-bomb conference (he left Los Alamos two months later).

10. In regard to thermonuclear weapons, the extent of Fuchs participation in the work at Los Alamos Laboratory is indicated by the excerpts quoted in the Tab to this report. Fuchs apparently transmitted essentially the ideas contained in the report on the April 1946 "super" conference at Los Alamos (documents LA 551 and LA 575); he was present and a principal participant in this conference.

"d. 19 April 1946 (1000) Third meeting of the "Super"

conference. Messrs. Metropolis and Turkevich discussed numerical calculations on various phases of the "Super" carried out on the "Eniac" calculator at Philadelphia. These solutions

. Mr. Lansdorf discussed the compression properties of deuterium and deuterium plus tritium mixtures.

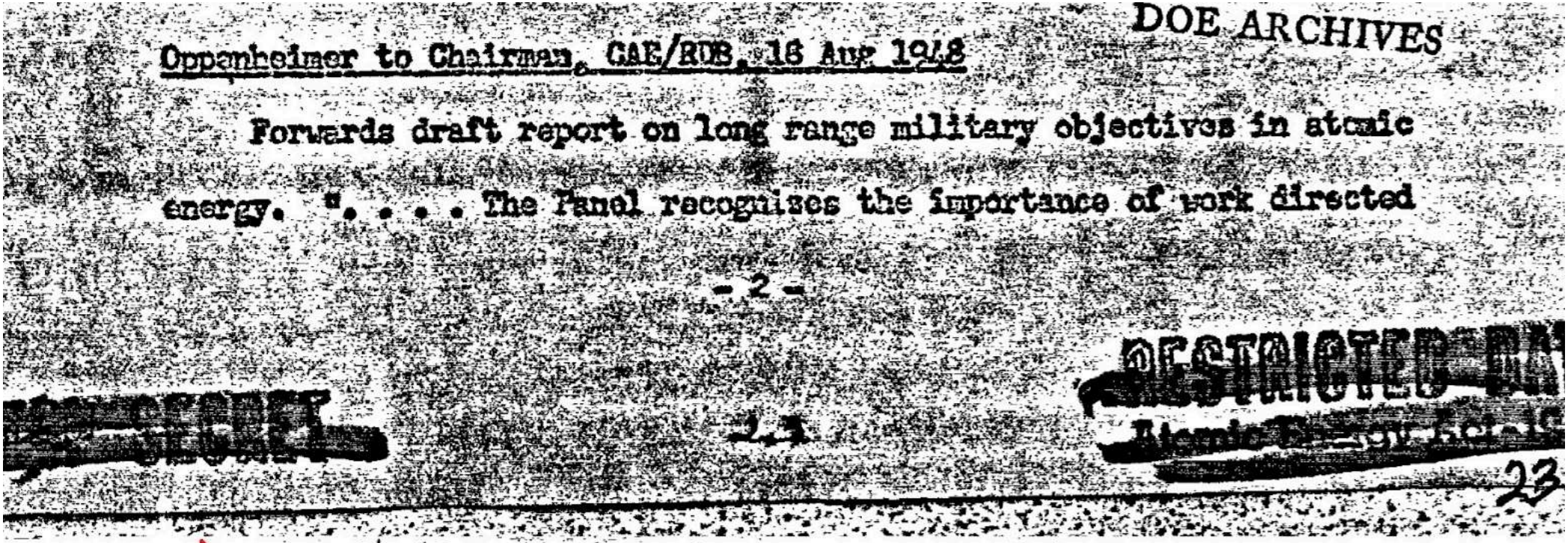
Suggestions were made by various people in attendance as to the manner of minimizing the rise in entropy during compression. In attendance were Messrs. Tuck, Bretscher, and Fuchs.

"e. 19 April 1946 (1400) Fourth meeting of the "Super" conference. Mr. Lansdorf continued his discussion on the compression of the various materials. Mr. Edward Teller then addressed the meeting on the experimental program which was believed necessary in the preparation of a "Super." He mentioned a program for the study of the 14 Mev neutrons released in the nuclear reaction and the cross sections for various processes

FOIA 17-00131-H	6/12/2017	Wellerstein, Alex	Stevens Institute of Technology	Requesting the following list of reports contained in the Lawrence Livermore National Laboratory (LLNL) and Los Alamos National Laboratory (LANL): * UCRL-4374. Weapon development during July 1954. No 1. august 18, 1954. * UCRL-4445. Weapon development during December 1954. No 6. * UCRL-4453. Water waves produc by surface explosions. S. Tamor. February 21.955. * UCRL-4514. Weapon development during April 1955. No 10. June 3, 1955 * UCRL-4525. Weapon development during May 1955. No 11. June 16, 1955 * UCRL-4548 Weapon development during June 1955. No 12. Aug 3, 1955 * UCRL-4566. Weapon development during July 1955. . No 13. Sep 20, 1955. * UCRL-4574. Weapon development during August 1955. No 14. Oct 10, 1955 UCRL-4584, Weapon development during September 1955. No 15. Oct 26, 1955 * UCRL-4606. Weapon development during October 1955. No 16. Nov. 18, 1955. * UCRL-4621. Weapon development during November 1955. No 17. Dec 15, 1955 * UCRL-4633. Weapon development during December 1955. No 18. Ja 13, 1956 * UCRL-4638. Weapon development during January1956. No 19. Feb 10, 1956 * UCRL-4662. Weap development during February1956. No 20. Mar. 13, 1956 * UCID-15048. Explosion of a 500 megaton bomb the surface of the Earth. J Viecelli, Jan. 1, 1966 * LA-00290-MS. Super-Gadget program. E. Teller, E. Konopinski, E. Fermi. Oct. 8, 1945 * LA-00551. Prima facie proof of the feasibility of the Super S. Funkel. apr 15, 1946 * LA-00615-MS. Predetonation of the Alarm Clock. M.G. Mayer. Sep. 15, 1947. * LA-00622-MS. Inhomogeneous bomb. E. Teller. Sep. 29, 1947. * LA 11636. Improved theory of the alarm Clock, L.W. Nordheim, E.J. Zadina. June 26, 1947. * LA-00643. On the development of thermonuclear bombs. E. Teller. Sep. 26, 1947 * LA-00645 Remarks on th Alarm Clock, L.W. Nordheim, E.J. Zadina, Jan. 22, 1948 * LA-0064 Integration of six Alarm Clock models, E.J. Zadina, Jan 22, 1948. * LA-01066-MS. Daddy pocketbook. H. May E. Teller, G. Gamow, Jan 25, 1950 * LA-01076, Ignition of a large mass of deuterium by a burning deuterium tritium mixture problem. CJ Everett, SM Ulam. Mar 7, 1950 * LA-01093, Little Edward design studies, V. Josephson, R.W. Paine, LL Woodward Mar. 30, 1950 * LA-01102. Detection of a Super explosion, R.W. Spenc E.C. Anderson, Apr. 20 1950. * LA-01113, Little Edward design studies, part 2. V. Josephson, R.W. Paine, LL Woodward. May 17, 1950 * La-01124, Ignition of a large mass of deuterium by a burning deuterium-tritium mixture problem, problem II. C.J. Everett, S.M. Ulam. June 16, 1950 * LA-01125, Similarity rules for fission bombs and thermonuclear bombs, May 25, 1950 * LA-01158, Considerations on thermonuclear reactions, E. Fermi. S.M. Ulam, Sep. 26, 1950 * LA-01160, Little Edward prototype reactivity tests. V. Josephson, R.W. Paine, LL Woodward, aug. 19, 1950 * LA-01658. Propagation of a thermonuclear reaction, C. Evans, F. Evans Von Neumann, May 17, 1954 * LA-07615. A modern analysis of Classical Super, J.C. Solem, Dec. 15, 1978

https://www.governmentattic.org/46docs/NNSAfoiaLogs_2016-2020.pdf

In fact (see Lawrence Livermore National Laboratory nuclear warhead designer Nuckolls' explanation in report UCRL-74345): "The rates of burn, energy deposition by charged reaction products, and electron-ion heating are proportional to the density, and the inertial confinement time is proportional to the radius. ... The burn efficiency is proportional to the product of the burn rate and the inertial confinement time ...", i.e. the fusion burn rate is directly proportional to the fuel density, which in turn is of course inversely proportional to the cube of its radius. But the inertial confinement time for fusion to occur is proportional to the radius, so the fusion stage efficiency in a nuclear weapon is the product of the burn rate (i.e., 1/radius^3) and time (i.e., radius), so efficiency ~ radius/(radius^3) ~ 1/radius^2. Therefore, for a given fuel temperature, the total fusion burn, or the efficiency of the fusion stage, is inversely proportional to the square of the compressed radius of the fuel! (*Those condemning Teller's theoretical errors or "arrogance" should be aware that he pushed hard all the time for experimental nuclear tests of his ideas, to check if they were correct, exactly the right thing to do scientifically and others who read his papers had the opportunity to point out any theoretical errors, but was rebuffed by those in power, who used a series of contrived arguments to deny progress, based upon what Harry would call "subconscious bias", if not arrogant, damning, overt bigotry against the kind of credible, overwhelming deterrence which had proved lacking a decade earlier, leading to WWII. This callousness towards human suffering in war and under dictatorship existed in some UK physicists too: Joseph Rotblat's hatred of anything to deter Russia be it civil defense or tactical neutron bombs of the West - he had no problem smiling and patting Russia's neutron bomb when visiting their labs during cosy groupthink deluded Pugwash campaigns for Russian-style "peaceful collaboration" - came from deep family communist convictions, since his brother was serving in the Red Army in 1944 when he alleged he heard General Groves declare that the bomb must deter Russia! Rotblat stated he left Los Alamos as a result. The actions of these groups are analogous to the "Cambridge Scientists Anti-War Group" in the 1930s.* After Truman ordered a H-bomb, Bradbury at Los Alamos had to start a "Family Committee" because Teller had a whole "family" of H-bomb designs, ranging from the biggest, "Daddy", through various "Alarm Clocks", all the way down to small internally-boosted fission tactical weapons. From Teller's perspective, he wasn't putting all eggs in one basket.)



DOE ARCHIVES

Oppenheimer to Chairman, GAE/RDB, 16 Aug 1948

Forwards draft report on long range military objectives in atomic energy. ". . . . The Panel recognizes the importance of work directed

- 2 -

[redacted]

RESTRICTED DATA

Atomic Energy Act 1954

23

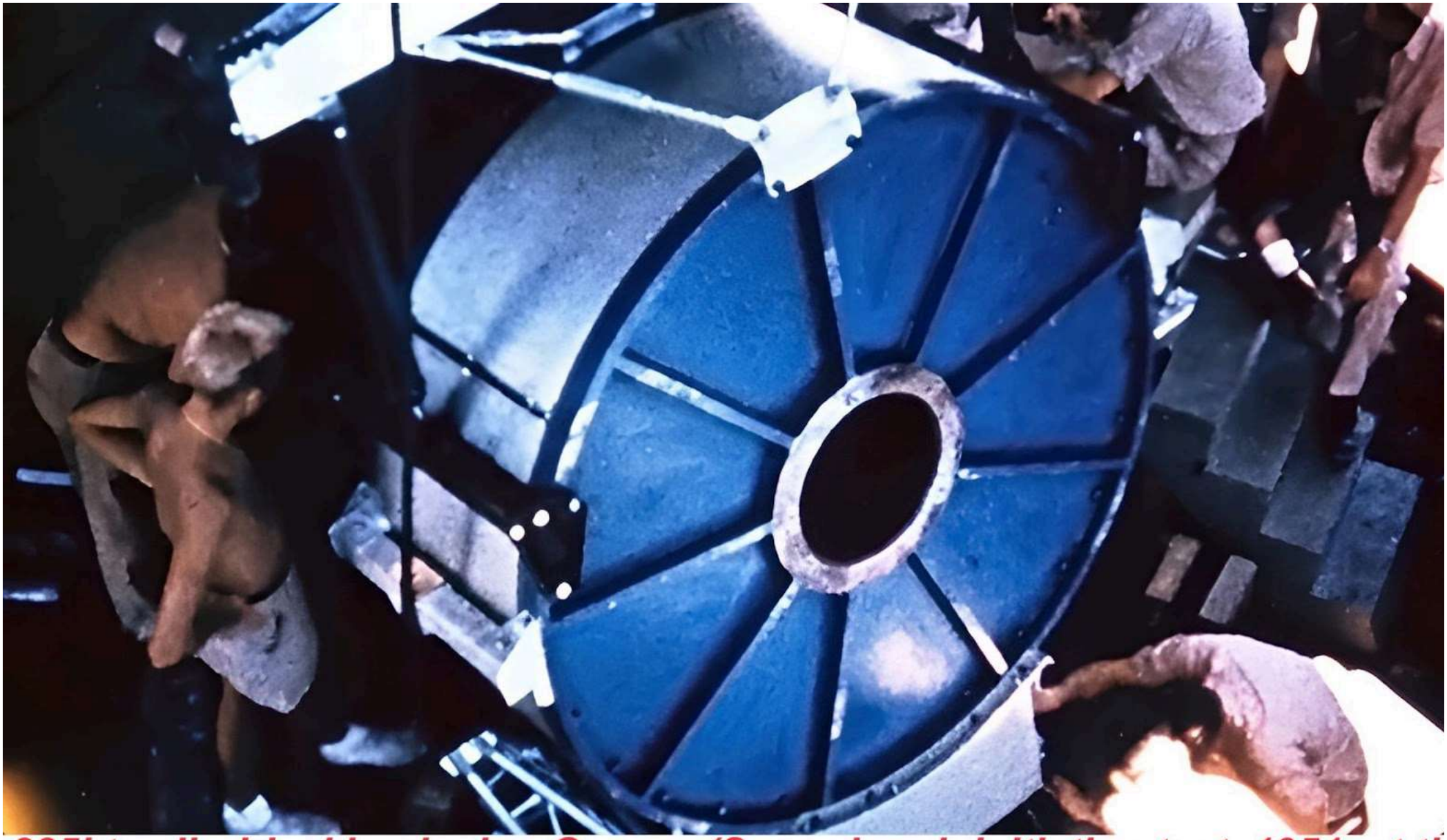
Wrong ⇨ (2) "In order to detonate a super, the fission 'primer' can almost certainly not be an implosion. . . . .

Not done till 1951 (Item shot)! ⇨ (3) "The most promising thermonuclear weapon for the short-term would appear to be the 'booster'.

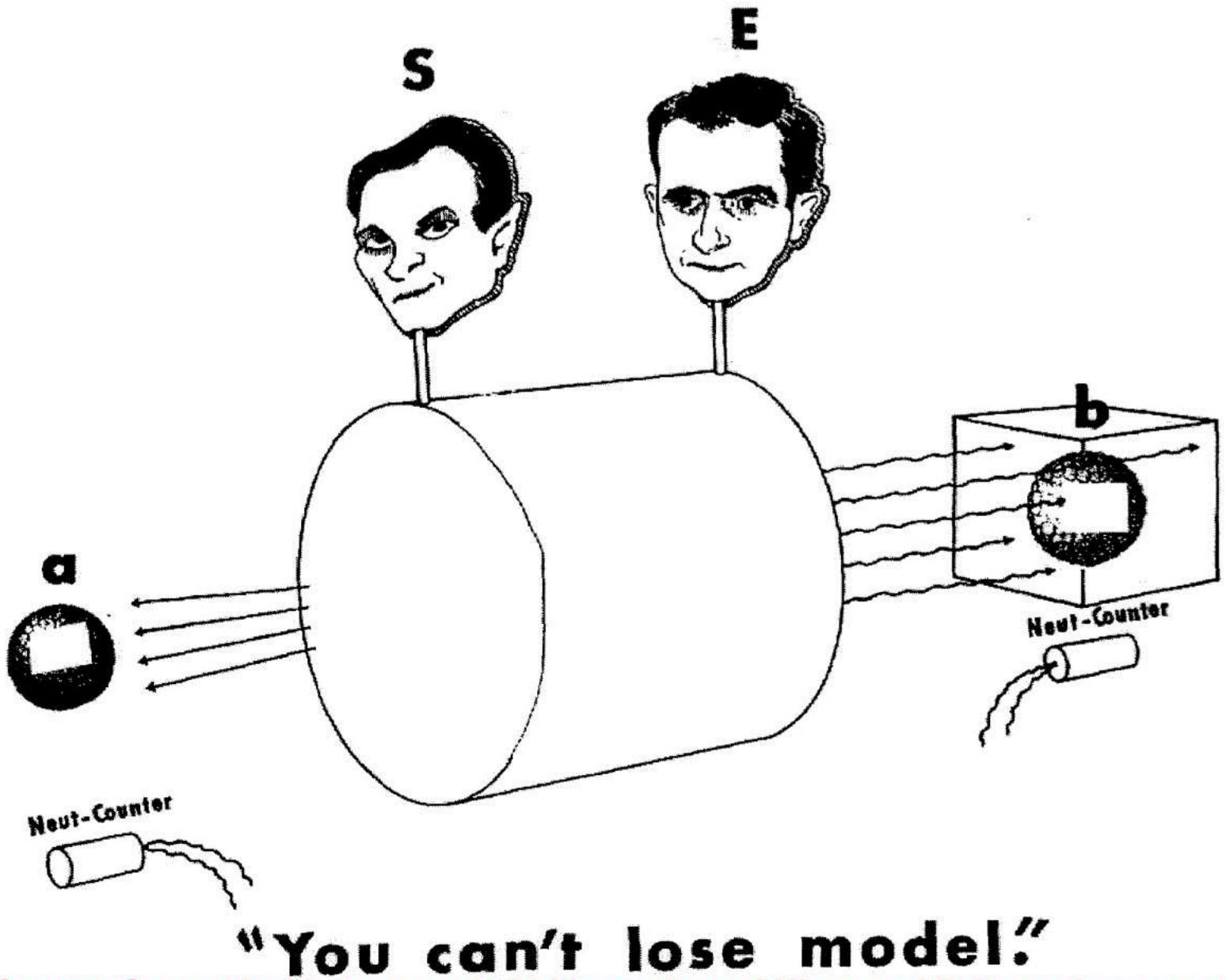
Above: extracts from Oppenheimer's 18 August 1948 Source: PDF pagination pages 23-24 of https://www.osti.gov/opennet/servlets/purl/16091125.pdf

Note that implosion bombs were discounted as Super primaries in 1946 due to the x-ray attenuation by ~44cm thick HE debris around their core. But George Gamow in Jan 1949 suggested a cylindrical implosion initiator, 225 kt "George"

Gallow in Jan 1949 suggested a cylindrical implosion initiator, 225 kt "George".



225kt cylindrical implosion George (Super bomb initiation test, 1951, at th
Eniwetok Atoll). NOTE: 9 segments of HE surround hollow U235 cylinder.



George Gamow's 14 January 1949 illustration of Ulam and Teller using x-rays from both sides of a cylindrical George fission implosion bomb to implode 2 fusion capsules: LAB-ADWD-25, "Proposals in the Direction of the Super".

Above: declassified illustration from a January 1949 secret report by the popular physics author and Los Alamos nuclear weapons design consultant George Gamow, showing his suggestion of using x-rays from both sides of a cylindrically imploded fission device to expose two fusion capsules to x-rays to test whether compression (fusion in BeO box on right side) helps, or is unnecessary (capsule on left side). Neutron counters detect 14.1 Mev T+D neutrons using time-of-flight method (higher energy neutrons traver faster than ~1 Mev fission stage neutrons, arriving at detectors first, allowing discrimination of the neutron energy spectrum by time of arrival). It took over two years to actually fire this 225 kt shot (8 May 1951)! No wonder Teller was outraged. A few interesting reports by Teller and also Oppenheimer's secret 1949 report opposing the H bomb project as it then stood on the grounds of low damage per dollar - precisely the exact opposite of the "interpretation" the media and gormless fools will assert until the cows come home - are linked here. The most interesting is Teller's 14 August 1952 Top Secret paper debunking Hans Bethe's propaganda, by explaining that contrary to Bethe's claims, Stalin's spy Klaus Fuch had the key "radiation implosion"- see second para on p2 - secret of the H-bomb because he attended the April 1946 Superbomb Conference which was not even attended by Bethe! It was this very fact in April 1946, noted by two British attendees of the 1946 Superbomb Conference before collaboration was ended later in the year by the 1946 Atomic Energy Act, statement that led to Sir James Cladwick's secret use of "radiation implosion" for stages 2 and 3 of his triple staged H-bomb report the next month, "The Superbomb", a still secret document that inspired Penney's original Tom/Dick/Harry staged and radiation imploded H-bomb thinking, which is summarized by security cleared official historian Arnold's Britain and the H-Bomb. Teller's 24 March 1951 letter to Los Alamos director Bradbury was written just 15 days after his historic Teller-Ulam 9 March 1951 report on radiation coupling and "radiation mirrors" (i.e. plastic casing lining to re-radiate soft x-rays on to the thermonuclear stage to ablate and thus compress it), and states: "Among the tests which seem to be of importance at the present time are those concerned with boosted weapons. Another is connected vith the possibility of a heterocatalytic explosion, that is, implosion of a bomb using the energy from another, auxiliary bomb. A third concerns itself with tests on mixing during atomic explosions, which question is of particular importance in connection with the Alarm Clock."

There is more to Fuchs' influence on the UK H-bomb than I go into that paper; Chapman Pincher alleged that Fuchs was treated with special leniency at his trial and later he was given early release in

1959 because of his contributions and help with the UK H-bomb as author of the key Fuchs-von Neumann x-ray compression mechanism patent. For example, Penney visited Fuchs in June 1952 in Stafford Prison; see pp309-310 of Frank Close's 2019 book "Trinity". Close argues that Fuchs gave Penney a vital tutorial on the H-bomb mechanism during that prison visit. That wasn't the last help, either, since the UK Controller for Atomic Energy Sir Freddie Morgan wrote Penney on 9 February 1953 that Fuchs was continuing to help. Another gem: Close gives, on p396, the story of how the FBI became suspicious of Edward Teller, after finding a man of his name teaching at the NY Communist Workers School in 1941 - the wrong Edward Teller, of course - yet Teller's wife was indeed a member of the Communist-front "League of women shoppers" in Washington, DC.

Chapman Pincher, who attended the Fuchs trial, writes about Fuchs hydrogen bomb lectures to prisoners in chapter 19 of his 2014 autobiography, *Dangerous to know* (Biteback, London, pp217-8): "... Donald Hume ... in prison had become a close friend of Fuchs ... Hume had repaid Fuchs' friendship by organising the smuggling in of new scientific books ... Hume had a mass of notes ... I secured Fuchs's copious notes for a course of 17 lectures ... including how the H-bomb works, which he had given to his fellow prisoners ... My editor agreed to buy Hume's story so long as we could keep the papers as proof of its authenticity ... Fuchs was soon due for release ..."

Chapman Pincher wrote about this as the front page exclusive of the 11 June 1952 Daily Express, "Fuchs: New Sensation", the very month Penney visited Fuchs in prison to receive his H-bomb tutorial! UK media insisted this was evidence that UK security still wasn't really serious about deterring further nuclear spies, and the revelations finally culminated in the allegations that the MI5 chief 1956-65 Roger Hollis was a Russian fellow-traveller (Hollis was descended from Peter the Great, according to his elder brother Chris Hollis' 1958 book *Along the Road to Frome*) and GRU agent of influence, codenamed "Elli". Pincher's 2014 book, written aged 100, explains that former MI5 agent Peter Wright suspected Hollis was Elli after evidence collected by MI6 agent Stephen de Mowbray was reported to the Cabinet Secretary. Hollis is alleged to have deliberately fiddled his report of interviewing GRU defector Igor Gouzenko on 21 November 1945 in Canada. Gouzenko had exposed the spy and Groucho Marx lookalike Dr Alan Nunn May (photo below), and also a GRU spy in MI5 codenamed Elli, who used only duboks (dead letter boxes), but Gouzenko told Pincher that when Hollis interviewed him in 1945 he wrote up a lengthy false report claiming to discredit many statements by Gouzenko: "I could not understand how Hollis had written so much when he had asked me so little. The report was full of nonsense and lies. As [MI5 agent Patrick] Stewart read the report to me [during the 1972 investigation of Hollis], it became clear that it had been faked to destroy my credibility so that my information about the spy in MI5 called Elli could be ignored. I suspect that Hollis was Elli." (Source: Pincher, 2014, p320.) Christopher Andrew claimed Hollis couldn't have been GRU spy Elli because KGB defector Oleg Gordievsky suggested it was the KGB spy Leo Long (sub-agent of KGB spy Anthony Blunt). However, Gouzenko was GRU, not KGB like Long and Gordievsky! Gordievsky's claim that "Elli" was on the cover of Long's KGB file was debunked by KGB officer Oleg Tsarev, who found that Long's codename was actually Ralph! Another declassified Russian document, from General V. Merkulov to Stalin dated 24 Nov 1945, confirmed Elli was a GRU agent inside british intelligence, whose existence was betrayed by Gouzenko. In Chapter 30 of *Dangerous to Know*, Pincher related how he was given a Russian suitcase sized microfilm enlarger by 1959 Hollis spying eyewitness Michael J. Butt, doorman for secret communist meetings in London. According to Butt, Hollis delivered documents to Brigitte Kuczynski, younger sister of Klaus Fuchs' original handler, the notorious Sonia aka Ursula. Hollis allegedly provided Minox films to Brigitte discretely when walking through Hyde Park at 8pm after work. Brigitte gave her Russian made Minox film enlarger to Butt to dispose of, but he kept it in his loft as evidence. (Pincher later donated it to King's College.) Other more circumstantial evidence is that Hollis recruited the spy Philby, Hollis secured spy Blunt immunity from prosecution, Hollis cleared Fuchs in 1943, and MI5 allegedly destroyed Hollis' 1945 interrogation report on Gouzenko, to prevent the airing of the scandal that it was fake after checking it with Gouzenko in 1972.

It should be noted that the very small number of Russian GRU illegal agents in the UK and the very small communist party membership had a relatively large influence on nuclear policy via infiltration of unions which had block votes in the Labour Party, as well the indirect CND and "peace movement" lobbies saturating the popular press with anti-civil defence propaganda to make the nuclear deterrent totally incredible for any provocation short of a direct all-out countervalue attack. Under such pressure, UK Prime Minister Harold Wilson's government abolished the UK Civil Defence Corps, making the UK nuclear deterrent totally incredible against major provocations, in March 1968. While there was some opposition to Wilson, it was focussed on his profligate nationalisation policies which were undermining the economy and thus destabilizing military expenditure for national security. Peter Wright's 1987 book Spycatcher and various other sources, including Daily Mirror editor Hugh Cudlipp's book Walking on Water, documented that on 8 May 1968, the Bank of England's director Cecil King, who was also Chairman of Daily Mirror newspapers, Mirror editor Cudlipp and the UK Ministry of Defence's anti-nuclear Chief Scientific Adviser Sir Solly Zuckerman, met at Lord Mountbatten's house in Kinnerton Street, London, to discuss a coup e'tat to overthrow Wilson and make Mountbatten the UK President, a new position. King's position, according to Cudlipp - quite correctly as revealed by the UK economic crises of the 1970s when the UK was effectively bankrupt - was that Wilson was setting the UK on the road to financial ruin and thus military decay. Zuckerman and Mountbatten refused to take part in a revolution, however Wilson's government was attacked by the Daily Mirror in a front page editorial by Cecil King two days later, on 10 May 1968, headlined "Enough is enough ... Mr Wilson and his Government have lost all credibility, all authority." According to Wilson's secretary Lady Falkender, Wilson was only told of the coup discussions in March 1976.

CND and the UK communist party alternatively tried to claim, in a contradictory way, that they were (a) too small in numbers to have any influence on politics, and (b) they were leading the country towards utopia via unilateral nuclear disarmament saturation propaganda about nuclear weapons annihilation (totally ignoring essential data on different nuclear weapon designs, yields, heights of burst, the "use" of a weapon as a deterrent to PREVENT an invasion of concentrated force, etc.) via the infiltrated BBC and most other media. Critics pointed out that Nazi Party membership in Germany was only 5% when Hitler became dictator in 1933, while in Russia there were only 200,000 Bolsheviks in September 1917, out of 125 million, i.e. 0.16%. Therefore, the whole threat of such dictatorships is a minority seizing power beyond it justifiable numbers, and controlling a majority which has different views. Traditional democracy itself is a dictatorship of the majority (via the ballot box, a popularity contest); minority-dictatorship by contrast is a dictatorship by the fanatically motivated minority by force and fear (coercion) to control the majority. The coercion tactics used by foreign dictators to control the press in free countries are well documented, but never publicised widely. Hitler put pressure on Nazi-critics in the UK "free press" via UK Government appeasers Halifax, Chamberlain and particularly the loathsome UK ambassador to Nazi Germany, Sir Neville Henderson, for example trying to censor or ridicule appeasement critics David Low, to fire Captain W. E. Johns (editor of both Flying and Popular Flying, which had huge circulations and attacked appeasement as a threat to national security in order to reduce rearmament expenditure), and to try to get Winston Churchill deselected. These were all sneaky "back door" pressure-on-publishers tactics, dressed up as efforts to "ease international tensions"! The same occurred during the Cold War, with personal attacks in Scientific American and Bulletin of the Atomic Scientists and by fellow travellers on Herman Kahn, Eugene Wigner, and others who warned we need civil defence to make a deterrent of large provocations credible in the eyes of an aggressor.

Chapman Pincher summarises the vast hypocritical Russian expenditure on anti-Western propaganda against the neutron bomb in Chapter 15, "The Neutron Bomb Offensive" of his 1985 book *The Secret Offensive*: "Such a device ... carries three major advantages over Hiroshima-type weapons, particularly for civilians caught up in a battle ... against the massed tanks which the Soviet Union would undoubtedly use ... by exploding these warheads some 100 feet or so above the massed tanks, the blast and fire ... would be greatly reduced ... the neutron weapon produces little radioactive fall-out so the long-term danger to civilians would be very much lower ... the weapon was of no value for attacking cities and the avoidance of damage to property can hardly be rated as of interest only to 'capitalists' ... As so often happens, the constant repetition of the lie had its effects on the gullible ... In August 1977, the [Russian] World Peace Council ... declared an international 'Week of action' against the neutron bomb. ... Under this propaganda Carter delayed his decision, in September ... a Sunday service being attended by Carter and his family on 16 October 1977 was disrupted by American demonstrators shouting slogans against the neutron bomb [see the 17 October 1977 Washington Post] ... Lawrence Eagleburger, when US Under Secretary of State for Political Affairs, remarked, 'We consider it probably that the Soviet campaign against the 'neutron bomb cost some $100 million'. ... Even the Politburo must have been surprised at the size of what it could regard as a Fifth Column in almost every country." [Unfortunately, Pincher himself had contributed to the anti-nuclear nonsense in his 1965 novel "Not with a bang" in which small amounts of radioactivity from nuclear fallout combine with medicine to exterminate humanity! The allure of anti-nuclear propaganda extends to all who which to sell "doomsday fiction", not just Russian dictators but mainstream media story tellers in the West. By contrast, Glasstone and Dolan's 1977 Effects of Nuclear Weapons doesn't even mention the neutron bomb, so there was no scientific and technical effort whatsoever by the West to make it a credible deterrent even in the minds of the public it had to protect from WWIII!]

"The Lance warhead is the first in a new generation of tactical mini-nukes that have been sought by Army field leading advocates: the series of American generals who have commanded the North Atlantic Treaty organization theater. They have argued that the 7,000 unclear warheads now in Europe are old, have too large a nuclear yield and thus would not be used in a war. With lower yields and therefore less possible collateral damage to civilian populated areas, these commanders have argued, the new mini-nukes are more credible as deterrents because they just might be used on the battlefield without leading to automatic nuclear escalation. Under the nuclear warhead production system, a President must personally give the production order. President Ford, according to informed sources, signed the order for the enhanced-radiation Lance warhead. The Lance already has regular nuclear

warheads and it deployed with NATO forces in Europe. In addition to the Lance warhead, other new production starts include: An 8-inch artillery-fired nuclear warhead to replace those now in Europe. This shell had been blocked for almost eight years by Sen. Stuart Symington (D-Mo.), who had argued that it was not needed. Symington retired last year. The Pentagon and ERDA say the new nuclear 8-inch warhead would be safer from stealing by terrorists. Starbird testified. It will be "a command disable system" to melt its inner workings if necessary. ... In longer-term research, the bill contains money to finance an enhanced-radiational bomb to the dropped from aircraft." - Washington post, 5 June 1977.





LEFT: nuclear physics communist spy Dr Alan Nunn May, cleared by MI5 despite his Groucho Marx (photo above) appearance! He was exposed by the the defection of Russian GRU agent Igor Gouzenko in Canada, September 1945 and convicted of espionage and later worked at Ghana University, Accra.

Gouzenko smuggled out of the Russian Embassy in Ottawa, Canada, telegrams from Colonel Micolai Zabotin (agent codename: "Grant") concerning information and also samples of fissile material that Dr Nunn May (agent codename "Alek") had provided Russia: Dr Nunn May told Stalin in this way: (1) U235 output was 400 grams/daily at the Clinton magnetic separation plant, while Pu239 output was 250 grams/day per 25 MW reactor at Hanford. Dr Nunn May also handed over to Zabotin samples of 162 micrograms of U233 deposited on platinum foil and 1 mg of highly enriched U235 in a glass tube. In addition, Dr Nunn May handed over data on the rada proximity anti-aircraft shell electronics!

ON HETEROCATALYTIC DETONATIONS I.

Hydrodynamic Lenses and Radiation Mirrors

Introduction

In this discussion the following general scheme is considered. By an explosion of one or several conventional auxiliary fission bombs, one hopes to establish conditions for the explosion of a "principal" bomb. This latter may be either a fission or a thermonuclear assembly.

We propose to discuss certain general features of such an arrangement. The main purpose of the "auxiliary" system is to induce very high compressions in the principal assembly. It is known (L. W. Nordheim, unpublished data) that, for example, in the "Alarm Clock" high compressions of the active core will permit economy in the tritium put initially into the system and may be instrumental in starting thermo-

nuclear reactions in assemblies of a feasible size. Ordinarily one uses high explosives as the auxiliary system. Great compression can be obtained, but the size of the highly compressed region is small. In certain thermonuclear arrangements, like the Alarm Clock, the size and the mass of the material to be compressed is so great that inordinate amounts of HE would have to be used. We have the following situation in mind, as

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August 11, 1952

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COMMENTS ON BETHE'S HISTORY OF THE THERMONUCLEAR PROGRAM(U) 93MDOT 62

Nuclear Document # SAB20004329

318421

The memorandum of Dr. Bethe has been prepared with the intention to prove that

(1) Progress in our thermonuclear program has been rapid since the Presidential Directive of 1950, and

(2) We probably are considerably ahead of the Russians in thermonuclear development.

His arguments are summarized on the last page of his memorandum which, for the sake of convenience, I shall quote:

(1) The DELETED DELETED is probably not feasible, certainly impractical.

(2) There are at present only two promising ways to obtain large-scale thermonuclear reactions, DELETED DELETED DELETED

(3) Development of a possibly practicable device could begin in earnest only after the invention of the radiation implosion which originated outside the thermonuclear program.

(4) The invention DELETED was largely accidental. It is unpredictable whether and when a similar invention was made or will be made by the Russian project. The invention in our project could probably not have been accelerated by harder work. Since the time the invention was made, work has progressed at maximum speed.

(5) The "Alarm Clock" was invented after Fuchs left, DELETED DELETED DELETED

(6) The thermonuclear work at Los Alamos was never really interrupted. Between Fall 1947 and Fall 1949, the booster was developed which proved very important in its own right and proved closer to present design than the 1946 version of a full-scale thermonuclear reaction.

My own opinions differ to some extent on all of the above points:

1. It is true that the detailed design DELETED as conceived in 1946, is in all probability impractical. It is, however, unclear whether or not some minor modifications, DELETED DELETED may alter this situation.

2. Many and varied models of thermonuclear bombs are likely to become feasible and practical by using a fission bomb to compress the thermonuclear bomb. DELETED DELETED DELETED The

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SECURITY INFORMATION

Attachment 1

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present models DELETED DELETED are very specific examples and more of the kind are likely to be developed. In my opinion DELETED has some promise in its present form, but there is no certainty that it will work. Success of the DELETED is unlikely. The thermonuclear program in Los Alamos was directed toward the two models mentioned above, and neglected general experimentation on various simple models in which one bomb compresses another.

VITAL

Teller debunks Bethe

3. DELETED DELETED The main principle of radiation implosion was developed in connection with the thermonuclear program and was stated at a conference on the thermonuclear bomb, in the spring of 1946. Dr. Bethe did not attend this conference but Dr. Fuchs did.

4. It is difficult to argue to what extent an invention is accidental; most difficult for someone who did not make the invention himself. It appears to me DELETED was a relatively slight modification of ideas generally known in 1946. DELETED DELETED DELETED Since the invention was made, work has progressed at great speed but in too narrow a direction.

5. The use of Li^6 was proposed in this country in the summer of 1950, that is after the arrest of Fuchs. The decision to produce Li^6 was made in the summer of 1951; thus the idea occurred late and there was further delay in the execution. It is likely that Li^6 will become important in some bomb DELETED DELETED DELETED

DOE ARCHIVES

6. The thermonuclear work at Los Alamos was at an almost complete standstill between the spring of 1946 and January 1950. Only one big scale device, the "Alarm Clock", was considered in that period, and the work of only three senior people was involved (Richtmayer for approximately eight months, Nordheim for approximately a month, Teller approximately two months and, in addition, the work of perhaps two or three computers for a full year.) The booster was proposed in the fall of 1947. Reasonably intensive work was carried out on that device in the second half of 1949. It took four years from the first proposal to make a test of the booster DELETED DELETED DELETED

I believe that we have pursued the thermonuclear development throughout the past seven years at much too slow a rate; and even since the Presidential Directive progress has been slower and certainly narrower than is consistent with national security. Our only comfort seems to be that the Russians have not as yet given any evidence of possessing an effective thermonuclear weapon. It is my opinion that we have excellent indications to the effect that thermonuclear weapons are feasible and practical. There is no assurance, however, that present plans will lead to a successful big scale explosion and there is even less certainty that the present early plans for a deliverable weapon will work out satisfactorily. We may, therefore, be at the beginning of an arduous program and it is quite possible that the Russians have advanced much farther along that road than we have.

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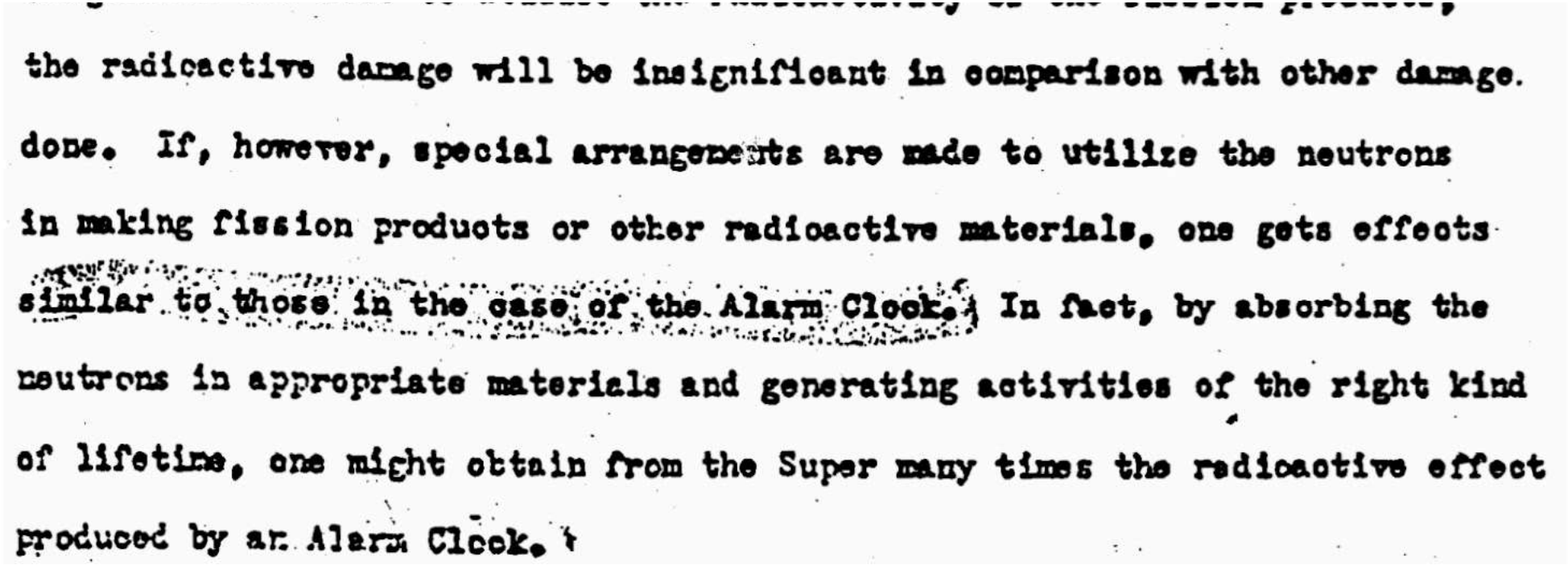
Teller on the use of fusion neutrons to cause fission in a surrounding U238 tamper or case in Los Alamos H-bomb research report LA-643, 16 Feb 1950

page 17: On the basis of the best available information on cross sections we have estimated that the total number of fissions caused by 2½ million volt neutrons is approximately .2, and the total number of fissions due to 14 million volt neutrons is .7. In these estimates neutrons slowed down below the 28 threshold are not included because

The estimates are consistent with integral experiments in which D-D neutrons are caught in a Uranium block (Reported in LA-304) and with similar experiments now in progress under the direction of Dr. Taschek in which D-T neutrons are used. The effect of the Deuterium could so far only be crudely estimated

page 25:

If a Super is used instead of the Alarm Clock and if no special arrangements are made to utilize the radioactivity of the fission products,



the radioactive damage will be insignificant in comparison with other damage. done. If, however, special arrangements are made to utilize the neutrons in making fission products or other radioactive materials, one gets effects similar to those in the case of the Alarm Clock. In fact, by absorbing the neutrons in appropriate materials and generating activities of the right kind of lifetime, one might obtain from the Super many times the radioactive effect produced by an Alarm Clock.

This debunks fake news that Teller's and Ulam's 9 March 1951 report LAMS-1225 itself gave Los Alamos the Mike H-bomb design, ready for testing! Teller was proposing a series of nuclear tests of the basic principles, not 10Mt Ivy-Mike *which was based on a report the next month by Teller alone,* LA-1230, "The Sausage: a New Thermonuclear System". When you figure that, what did Ulam actually contribute to the hydrogen bomb? Nothing about implosion, compression or separate stages - all already done by von Neumann and Fuchs five years earlier - and just a lot of drivel about trying to channel material shock waves from a primary to compress another fissile core, a real dead end. What Ulam *did* was to kick Teller out of his self-imposed mental objection to compression devices. Everything else was Teller's; the radiation mirrors, the Sausage with its outer ablation pusher and its inner spark plug. Note also that contrary to official historian Arnold's book (which claims due to a misleading statement by Dr Corner that all the original 1946 UK copies of Superbomb Conference documentation were destroyed after being sent from AWRE Aldermaston to London between 1955-63), all the documents did exist in the AWRE TPN (theoretical physics notes, 100% of which have been perserved) and are at the UK National Archives, e.g. AWRE-TPN 5/54 is listed in National Archives discovery catalogue ref ES 10/5: "Miscellaneous super bomb notes by Klaus Fuchs", see also the 1954 report AWRE-TPN 6/54, "Implosion super bomb: substitution of U235 for plutonium" ES 10/6, the 1954 report AWRE-TPN 39/54 is "Development of the American thermonuclear bomb: implosion super bomb" ES 10/39, see also ES 10/21 "Collected notes on Fermi's super bomb lectures", ES 10/51 "Revised reconstruction of the development of the American thermonuclear bombs", ES 1/548 and ES 1/461 "Superbomb Papers", etc. **Many reports are secret and retained, despite containing "obsolete" designs (although UK report titles are generally unredacted, such as: "Storage of 6kg Delta (Phase) -Plutonium Red Beard (tactical bomb) cores in ships")!** It should also be noted that the Livermore Laboatory's 1958 TUBA spherical secondary with an oralloy (enriched U235) outer pusher was just a reversion from Teller's 1951 core spark plug idea in the middle of the fusion fuel, back to the 1944 von Neumann scheme of having fission material surrounding the fusion fuel. **In other words, the TUBA was just a radiation and ionization imploded, internally fusion-boosted, second fission stage which could have been accomplished a decade earlier if the will existed, when all of the relevant ideas were already known.** ***The declassified UK spherical secondary-stage alternatives linked here (tested as Grapple X, Y and Z with varying yields but similar size, since all used the 5 ft diameter Blue Danube drop casing) clearly show that a far more efficient fusion burn occurs by minimising the mass of hard-to-compress U235 (oralloy) sparkplug/pusher, but maximising the amount of lithium-7, not lithium-6. Such a secondary with minimal fissionable material also automatically has minimal neutron ABM vulnerability (i.e., "Radiation Immunity", RI). This is the current cheap Russian neutron weapon design, but not the current Western design of warheads like the W78, W88 and bomb B61.***

So why on earth doesn't the West take the cheap efficient option of cutting expensive oralloy and maximising cheap natural (mostly lithium-7) LiD in the secondary? Even Glasstone's 1957 Effects of Nuclear Weapons on p17 (para 1.55) states that "Weight for weight ... fusion of deuterium nuclei would produce nearly 3 times as much energy as the fission of uranium or plutonium"! The sad answer is "density"! Natural LiD (containing 7.42% Li6 abundance) is a low density white/grey crystalline solid like salt that actually floats on water (lithium deuteroxide would be formed on exposure to water), since its density is just 820 kg/m^3. Since the ratio of mass of Li6D to Li7D is 8/9, it would be expected that the density of highly enriched 95% Li6D is 739 kg/m^3, while for 36% enriched Li6D it is 793 kg/m^3. Uranium metal has a density of 19,000 kg/m^3, i.e. 25.7 times greater than 95% enriched li6D or 24 times greater than 36% enriched Li6D. Compactness, i.e. volume is more important in a Western MIRV warhead than mass/weight! In the West, it's best to have a tiny-volume, very heavy, very expensive warhead. In Russia, cheapness outweights volume considerations. The Russians in some cases simply allowed their more bulky warheads to protrude from the missile bus (see photo below), or compensated for lower yields at the same volume using clean LiD by using the savings in costs to build more warheads. (The West doubles the fission yield/mass ratio of some warheads by using U235/oralloy pushers in place of U238, which suffers from the problem that about half the neutrons it interacts with result in non-fission capture, as explained below. Note that the 720 kiloton UK nuclear test Orange Herald device contained a hollow shell of 117 kg of U235 surrounded by a what Lorna Arnold's book quotes John Corner referring to a "very thin" layer of high explosive, and was compact, unboosted - the boosted failed to work - and gave 6.2 kt/kg of U235, whereas the first version of the 2-stage W47 Polaris warhead contained 60 kg of U235 which produced most of the secondary stage yield of about 400 kt, i.e. 6.7 kt/kg of U235. Little difference - but because perhaps 50% of the total yield of the W47 was fusion, its efficiency of use of U235 must have actually been *less* than the Orange Herald device, around 3 kt/kg of U235 which indicates design efficiency limits to "hydrogen bombs"! Yet anti-nuclear charlatans claimed that the Orange Herald bomb was a con!)

[redacted]

This document consists of 3 page
No. 3 of 3 copies. Series

Norris E. Bradbury

Edward Teller

March 24, 1951

PLAN FOR SETTING UP A SEPARATE THERMONUCLEAR DIVISION

R

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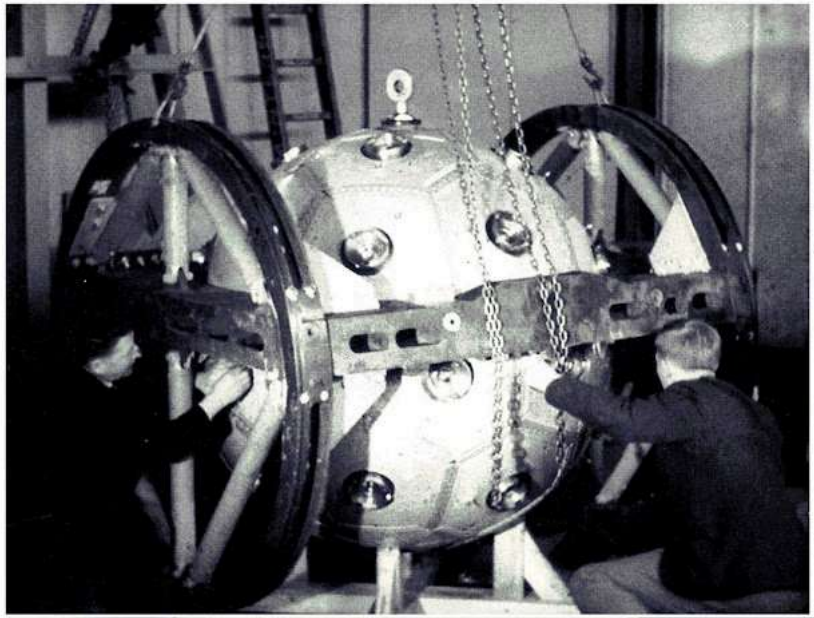
ADWD-250

The Los Alamos Scientific Laboratory has as one of its primary responsibilities the development of fission weapons. Thermonuclear work has so far been dispersed in several divisions which have heavy commitments elsewhere. This situation is bound to produce conflicts of interests and retardation of the thermonuclear program. It is my opinion that this

Among the tests which seem to be of importance at the present time are those concerned with boosted weapons. Another is connected with the possibility of a heterocatalytic explosion, that is, implosion of a bomb using the energy liberated from another, auxiliary bomb. A third concerns itself with tests on mixing during atomic explosions, which question is of particular importance in connection with the Alarm Clock.

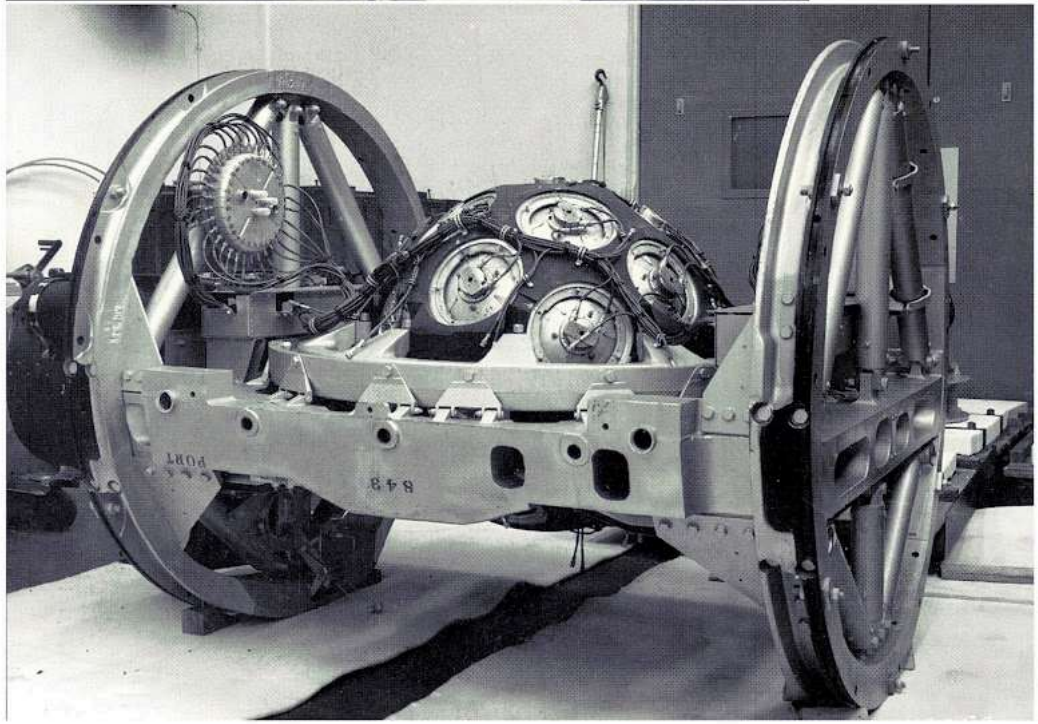
Teller's 24 March 1951 letter to Los Alamos director Bradbury was

written just 15 days after the historic Teller-Ulam 9 March 1951 report, does NOT push for a full-scale 10 Mt test (Teller's sausage design only came in April 1951!), but just tests of OLDER H-bomb design projects! SOURCE: www.osti.gov/opennet/servlets/purl/16089947.pdf

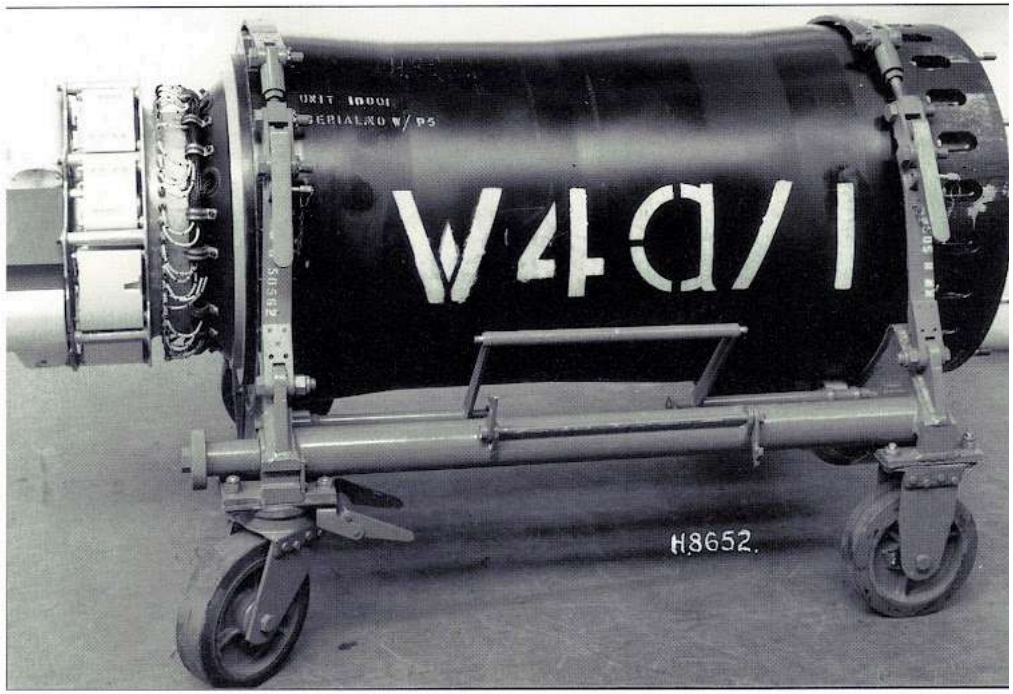


Comparison of 25 kt UK 1952 bomb Hurricane (6.19 kg Pu239 core), top, and 720 kt pure fission U235 implosion bomb Orange Herald, below. 117kg hollow U235

(5 ft diameter "wheel" cradles support nuclear weapons inside bomb drop case)



Notice small physical size of 720 kt pure fission (boosting failed) orange Herald, due to a very thin layer of high explosives. It gave 6.2 kt/kg of U235, compared to 6.7 for W47!



UK 1.1 megaton Red Snow (copy of American B28 cylindrical secondary bor



UK Grapple Z - Halliard 3-stage bomb (primary, fission secondary, and thermonuclear tertiary stages; all spheres), tested 11 September 1958 at American request (data exchanged for American B28 thermonuclear weapo



Bulky Russian warheads allowed to protride from missile bus on top of missile

ABOVE: **USA nuclear weapons data declassified by UK Government in 2010** (the information was originally acquired due to the 1958 UK-USA Act for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes, in exchange for UK nuclear weapons data) as published at **http://nuclear-weapons.info/images/tna-ab16-4675p63.jpg**. This single table summarizes all key tactical and strategic nuclear weapons secret results from 1950s testing! (*In order to analyze the warhead pusher thicknesses and very basic schematics from this table it is necessary to supplement it with the 1950s warhead design data declassified in other documents, particularly some of the data from **Tom Ramos** and Chuck Hansen, as quoted in some detail below*.) The data on the mass of special nuclear materials in each of the different weapons argues strongly that the entire load of Pu239 and U235 in the 1.1 megaton B28 was in the primary stage, so that weapon could not have had a fissile spark plug in the centre let alone a fissile ablator (unlike Teller's Sausage design of 1951), and so the B28 it appears had no need whatsoever of a beryllium neutron radiation shield to prevent pre-initiation of the secondary stage prior to its compression (on the contrary, such neutron exposure of the lithium deuteride in the secondary stage would be VITAL to produce some tritium in it prior to compression, to spark fusion when it was compressed).

CONTROLLABLE DOCUMENT Nº A/ 1171

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15JUN1966 * L.O. AWDAC
AUDIT 1966
AUDIT 1967

AWPAC/[illegible]/5

Copy No. 3 of 3 copies B Series

Page No. 1 of 2 pages

1. The attached table sets out a possible warhead requirement as postulated by Ministry of Defence and the manner in which it can be met related to the estimated annual and accumulated availability of material from A.E.A., C.E.G.B. and the U.S.

2. The quantities of material taken for each type of warhead are as follows:

	Pu kg	U kg	Li^6 kg	Tritium (grams) AN gm	
B28 primary = 65kt					
1600 lb. B28 — Red Snow Mt	1.6	11	16	2.54 to 2.49	1.1 Mt B28
Red Snow Kt	1.6	11	0.6	2.54 to 2.49	B28
150lb. W44 — Tony	2.25	1.4		6.0	Tsetse =10kt when boosted (assuming
100lb. — Low Tony	0.9	5.6	(0.084kt)		
75 lb. W54 — Wee Gwen	1.6	2.42	(0.02kt Davy Crockett)		
200lb. UNA	1.26	12	.75 or 2.7	(50 or 100kt)	

Arnold's book indeed explains that UK AWE physicists found the B28 to be an excellent, highly optimised, cheap design, unlike the later W47 which was extremely costly. The masses of U235 and Li6 in the W47 shows the difficulties of trying to maintain efficiency while scaling down the mass of a two-stage warhead for SLBM delivery: much larger quantities of Li6 and U235 must be used to achieve a LOWER yield! To achieve thermonuclear warheads of low mass at sub-megaton yields, both the outer bomb casing and the pusher around the the fusion fuel must be reduced:

"York ... studied the Los Alamos tests in Castle and noted most of the weight in thermonuclear devices was in their massive cases. Get rid of the case ... On June 12, 1953, York had presented a novel concept ... It radically altered the way radiative transport was used to ignite a secondary - and his concept did not require a weighty case ... they had taken the Teller-Ulam concept and turned it on its head ... the collapse time for the new device - that is, the amount of time it took for an atomic blast to compress the secondary - was favorable compared to older ones tested in Castle. Brown ... gave a female name to the new device, calling it the Linda." - Dr Tom Ramos (Lawrence Livermore National Laboratory nuclear weapon designer), *From Berkeley to Berlin: How the Rad Lab Helped Avert Nuclear War,* Naval Institute press, 2022, pp137-8. (*So if you reduce the outer casing thickness to reduce warhead weight, you must complete the pusher ablation/compression faster, before the thinner outer casing is blown off, and stops reflecting/channelling x-rays on the secondary stage. Making the radiation channel smaller and ablative pusher thinner helps to speed up the process. Because the ablative pusher is thinner, there is relatively less blown-off debris to block the narrower radiation channel before the burn ends.*)

"Brown's third warhead, the Flute, brought the Linda concept down to a smaller size. The Linda had done away with a lot of material in a standard thermonuclear warhead. Now the Flute tested how well designers could take the Linda's conceptual design to substantially reduce not only the weight but also the size of a thermonuclear warhead. ... The Flute's small size - it was the smallest thermonuclear device yet tested - became an incentive to improve codes. Characteristics marginally important in a larger device were now crucially important. For instance, the reduced size of the Flute's radiation channel could cause it to close early [with ablation blow-off debris], which would prematurely shut off the radiation flow. The code had to accurately predict if such a disaster would occur before the device was even tested ... the calculations showed changes had to be made from the Linda's design for the Flute to perform correctly." - Dr Tom Ramos (Lawrence Livermore National Laboratory nuclear weapon designer), *From Berkeley to Berlin: How the Rad Lab Helped Avert Nuclear War,* Naval Institute press, 2022, pp153-4. Note that the piccolo (the W47 secondary) is a **half-sized** flute, so it appears that the W47's secondary stage design miniaturization history was: Linda -> Flute -> Piccolo.

"A Division's third challenge was a small thermonuclear warhead for Polaris [the nuclear SLBM submarine that preceeded today's Trident system]. The starting point was the Flute, that revolutionary secondary that had performed so well the previous year. Its successor was called the Piccolo. For Plumbbob [Nevada, 1957], the design team tested three variations of the Piccolo as a parameter test. One of the variants outperformed the others ... which set the stage for the Hardtack [Nevada and Pacific, 1958] tests. Three additional variations for the Piccolo ... were tested then, and again an optimum candidate was selected. ... Human intuition as well as computer calculations played crucial roles ... Finally, a revolutionary device was completed and tested ... the Navy now had a viable warhead for its Polaris missile. From the time Brown gave Haussmann the assignment to develop this secondary until the time they tested the device in the Pacific, only 90 days had passed. As a parallel to the Robin atomic device, this secondary for Polaris laid the foundation for modern thermonuclear weapons in the United States." - Dr Tom Ramos (Lawrence Livermore National Laboratory nuclear weapon designer), *From Berkeley to Berlin: How the Rad Lab Helped Avert Nuclear War,* Naval Institute press, 2022, pp177-8. (Ramos is very useful in explaining that many of the 1950s weapons with complex non-spherical, non-cylindrical shaped primaries and secondaries were simply far too complex to fully simulate on the really pathetic computers they had - Livermore got a 4,000 vacuum tubes-based IBM 701 with 2 kB memory in 1956, AWRE Aldermaston in the Uk had to wait another year for theirs - so they instead did huge numbers of experimental explosive tests. For instance, on p173, Ramos discloses that the Swan primary which developed into the 155mm tactical shell, "went through over 100 hydrotests", non-nuclear tests in which fissile material is replaced with U238 or other substitutes, and the implosion is filmed with flash x-ray camera systems.)

"**An integral feature of the W47, from the very start of the program, was the use of an enriched uranium-235 pusher around the cylindrical secondary**." - Chuck Hansen, Swords 2.0, p. VI-375 (Hansen's source is his own notes taken during a 19-21 February 1992 nuclear weapons history conference he attended; if you remember the context, "Nuclear Glasnost" became fashionable after the Cold War ended, enabling Hansen to acquire almost unredacted historical materials for a few years until nuclear proliferation became a concern in Iraq, Afghanistan, Iran and North Korea). The key test of the original (Robin primary and Piccolo secondary) Livermore W47 was 412 kt Hardtack-Redwood on 28 June 1958. Since Li6D utilized at 100% efficiency would yield 66 kt/kg, the W47 fusion efficiency was only about 6%; since 100% fission of u235 yields 17 kt/kg, the W47's Piccolo fission (the u235 pusher) efficiency was about 20%; the comparable figures for secondary stage fission and fusion fuel burn efficiencies in the heavy B28 are about 7% and 15%, respectively:

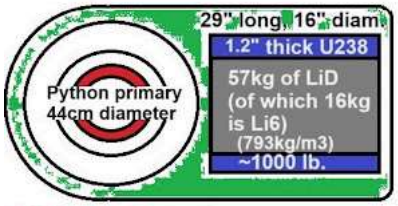
ABOVE: the heavy B28 gave a very "big bang for the buck": it was cheap in terms of expensive Pu, U235 and Li6, and this was the sort of deterrent which was wanted by General LeMay for the USAF, which wanted as many weapons as possible, within the context of Eisenhower's budgetary concerns. But its weight (not its physical size) made it unsuitable for SLBM Polaris warheads. The first SLBM warhead, the W47, was almost the same size as the B28 weapon package, but much lighter due to having a much thinner "pusher" on the secondary, and casing. But this came at a large financial cost in terms of the quantities of special nuclear materials required to get such a lightweight design to work, and also a large loss of total yield. The fusion fuel burn efficiency ranges from 6% for the 400 kt W47 to 15% for the 1.1 megaton B28 (note that for very heavy cased 11-15 megaton yield tests at Castle, up to 40% fusion fuel burn efficiency was achieved), whereas the secondary stage ablative pusher fission efficiency ranged from 7% for a 1.1 inch thick natural uranium (99.3% U238) ablator to 20% for a 0.15 inch thick highly enriched oralloy (U235) ablator. From the brief description of the design evolution given by Dr Tom Ramos (Lawrence Livermore National Laboratory), it appears that when the x-ray channelling outer case thickness of the weapon is reduced to save weight, the duration of the x-ray coupling is reduced, so the dense metal pusher thickness must be reduced if the same compression factor (approximately 20) for the secondary stage is to be accomplished (lithium deuteride, being of low density, is far more compressable by a given pressure, than dense metal). In both examples, the secondary stage is physically a boosted fission stage. (If you are wondering why the hell the designers don't simply use a hollow core U235 bomb like Orange Herald instead of bothering with such inefficient x-ray coupled two-stage designs as these, the answer is straightforward: the risk of large fissile core meltdown by neutrons Moscow ABM defensive nuclear warheads, neutron bombs.)

UK AWE physicists found the B28 to be an excellent, highly optimised, cheap design, unlike the later W47 which was extremely costly. The masses of U235 and Li6 in the W47 shows the difficulties of trying to maintain efficiency while scaling down the mass of a two-stage warhead for SLBM delivery: much larger quantities of Li6 and U235 must be used to achieve a LOWER yield! To achieve thermonuclear warheads of low mass at sub-megaton yields, both the outer bomb casing and the pusher around the the fusion fuel must be reduced:
Yield data is real is from UK National Archives, AB 16/3240 A1164 pt2, Atomic warheads production committee, general correspondence, 1958-66
Subject: Atomic Warheads Production Committee, General Correspondence, 1958-66
Source: National Archives, AB 16/4675 p63 of 65
Title: Atomic Warheads Production Committee, Papers and Minutes, 1964
(Released in 2010)
FROM: http://nuclearweapons.info/images/tna-ab16-4675p63.jpg

B28: 1.1 Mt, 1600 lb.
20" diameter, 49" long

Very heavy, cheap bomb

Only 11 kg of U235
Only 16 kg of Li6



U235 (red) ~36% Li6 enrichment

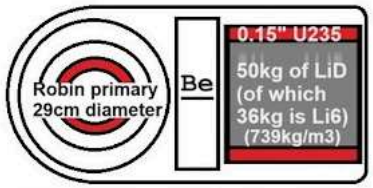
This device was tested as 1.1 megaton Redwing-Dakota in 1956.

15% fusion fuel burn efficiency
7% fission (pusher) efficiency

W47: 400 kt 700 lb.
18" diameter, 47" long

Low mass SLBM warhead

60 kg of U235
36 kg of Li6



U235 pusher (red)

Be neutron shield is 3" thick
Secondary cylinder is 26" long

6% fusion fuel burn efficiency
20% fission (pusher) efficiency

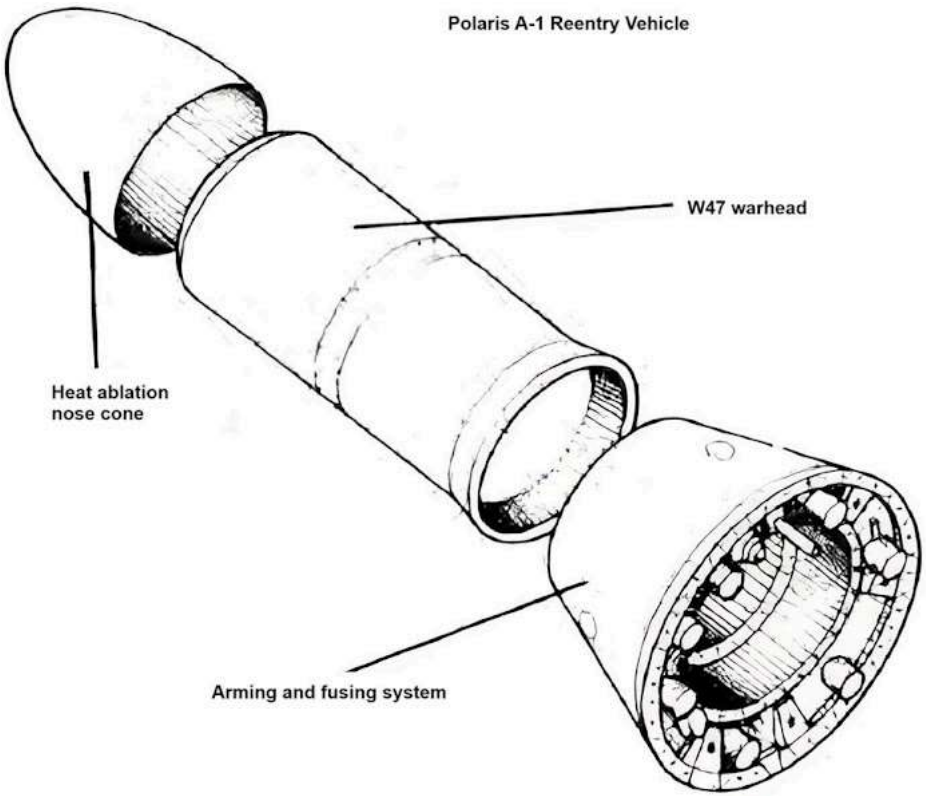
(Assumes the 11 kg of U235 in B28 was entirely in primary stage.)

(Neutron shield omitted in B28 so primary neutrons can fission Li.)

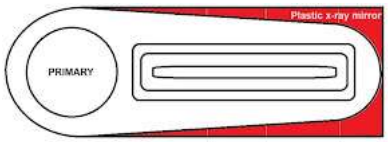
(Foam in B28 to slow x-ray delivery while neutrons fission lithium.)

(If B28 had 11kg U235 central spark plug, Be neutron shield would be needed, but foam would not.)

The overall weight of the W47 was minimized by replacing the usual thick layer of U238 pusher with a very thin layer of fissile U235 (supposedly Teller's suggestion), which is more efficient for fission, but is limited by critical mass issues. The W47 used a 95% enriched Li6D cylinder with a 3.8mm thick U235 pusher; the B28 secondary was 36% enriched Li6D, with a very heavy 3cm thick U238 pusher. As shown below, it appears the B28 was related to the Los Alamos clean design of the TX21C tested as 95% clean 4.5 megatons Redwing-Navajo in 1956 and did not have a central fissile spark plug. From the declassified fallout composition, it is known the Los Alamos designers replaced the outer U238 pusher of Castle secondaries with lead in Navajo. Livermore did the same for their 85% clean 3.53 megatons Redwing-Zuni test, but Livermore left the central fission spark plug, which contributed 10% of its 15% fission yield, instead of removing the neutron shield, using foam channel filler for slowing down the x-ray compression, and thereby using primary stage neutrons to split lithium-6 giving tritium prior to compression. Our point is that Los Alamos got it wrong in sticking too conservatively to ideology: for clean weapons they should have got rid of the dense lead pusher and gone for John H. Nuckolls idea (also used by Fuchs in 1946 and the Russians in 1955 and 1958) of a low-density pusher for isentropic compression of low-density fusion fuel. This error is the reason why those early cleaner weapons were extremely heavy due to unnecessary 2" thick lead or tungsten pushers around the fusion fuel, which massively reduced their yield-to-weight ratios, so that LeMay rejected them!





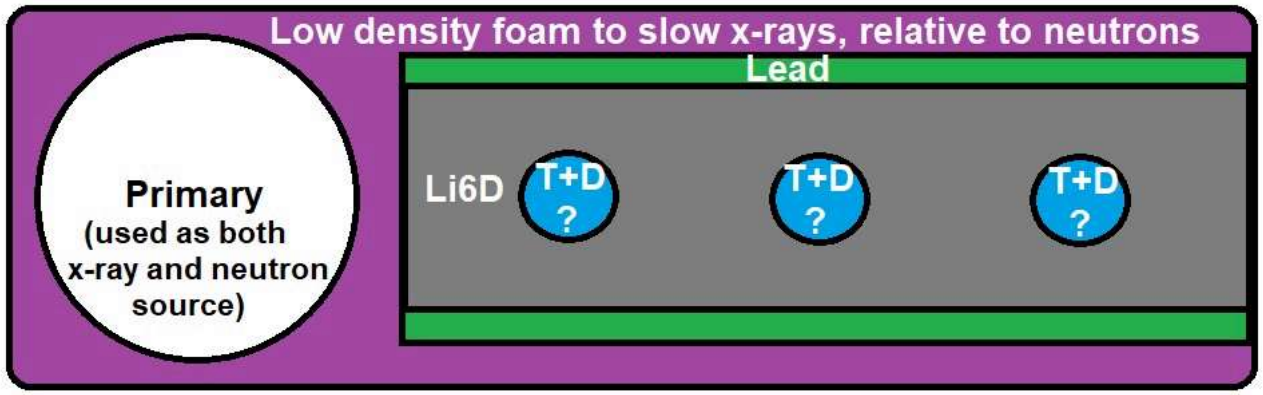


SCHMOO (bowling pin) design for Mike H-bomb radiation channel established by the Panda Committee on 18 January 1952. This Schmoo channel design is tapered in order to focus more x-rays on the far end of Teller's Sausage, which is furthest from the primary stage. (This was named after bowling pin shaped Schmoo in the comic Li'l Abner.) In March 1952 calculations showed that this design would in fact reduce the x-ray exposure to the distant end of the Sausage (on the far right in this diagram). Carson Mark then re-designed the Mike radiation mirrors back to a uniform cylinder with a "big, big, big channel." (Source: Jacob Wechsler interview by Richard Rhodes on 3 June 1994 and letter to Rhodes dated 27 December 1994, cited on pages 486-7 of Dark Sun, 1995.)

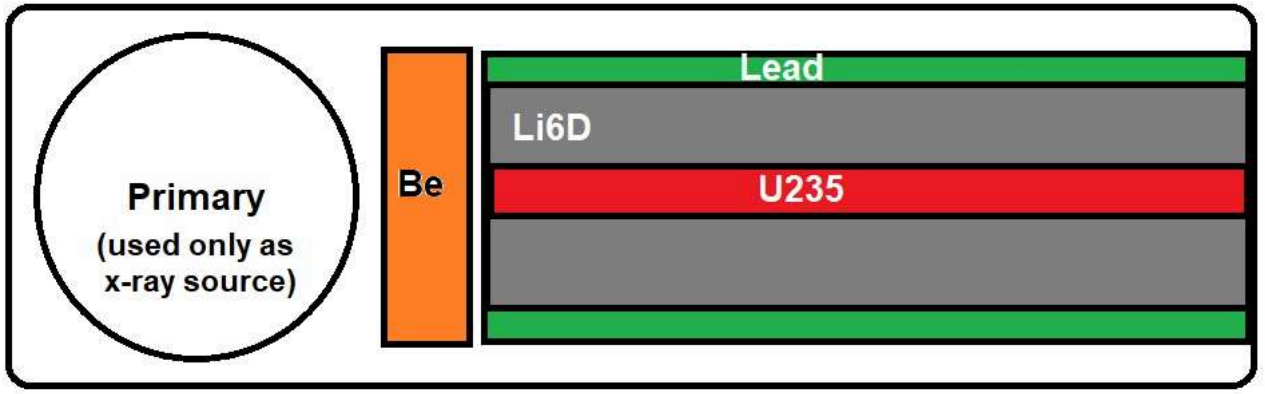


Tapered Sausage design with plastic foam radiation channel obstruction shown in Howard Morland's 1979 Progressive magazine article on the H-bomb and later (with the addition of an obsolete central fission fissile "spark plug" cylinder inside the secondary stage) in his 1981 book The Secret that Exploded. The idea of the tapering secondary stage Morland gives that the x-ray intensity might be expected to rapidly decrease further from the primary stage, particularly if they are being absorbed in plastic foam which fills the radiation channel. The idea here apparently a clean Sausage bomb design such as Navajo, whereby plastic foam slows x-ray energy delivery, in order to give time for the slower primary stage neutrons to split lithium giving tritium.

Compare these data for the 20 inch diameter, 49 inch, 1600 lb, 1.1 megaton bomb B28 to the 18 inch diameter, 47 inch, 700 lb, 400 kt Mk47/W47 Polaris SLBM warhead (this is the correct yield for the first version of the W47 confirmed by UK data in Lorna Arnold Britain and the H-bomb 2001 and **AB 16/3240**; Wikipedia wrongly gives the 600 kt figure in Hansen, which was a speculation or a later upgrade). **The key difference is that the W47 is much lighter, and thus suitable for the Polaris SLBM unlike the heavier, higher yield B28.** Both B28 and W47 used cylindrical sausages, but they are very different in composition; the B28 used a huge mass of U238 in its ablative sausage outer shell or pusher, while the W47 used oralloy/U235 in the pusher. The table shows the total amounts of Pu, Oralloy (U235), Lithium-6 (excluding cheaper lithium-7, which is also present in varying amounts in different thermonuclear weapons), and tritium (which is used for boosting inside fissile material, essentially to reduce the amount of Pu and therefore the vulnerability of the weapon to Russian enhanced neutron ABM warhead meltdown). The B28 also has an external dense natural U (99.3% U238) "ablative pusher shell" whose mass is not listed in this table. The table shows that the 400 kt W47 Polaris SLBM warhead contains 60 kg of U235 (*nearly as much as the 500 kt pure fission Mk18*), which is in an ablative pusher shell around the lithium deuteride, so that the cylinder of neutron-absorbing lithium-6 deuteride within it keeps that mass of U235 subcritical, until compressed. ***So the 400 kt W47 contains far more Pu, U235, Li6 and T than the higher yield 1.1 megaton B28: this is the big $ price you pay for reducing the mass of the warhead;*** ***the total mass of the W47 is reduced to 44% of the mass of the B28, since the huge mass of cheap U238 pusher in the B28 is replaced by a smaller mass of U235, which is more efficient because (as Dr Carl F. Miller reveals in USNRDL-466, Table 6), about half of the neutrons hitting U238 don't cause fission but instead non-fission capture reactions which produce U239, plus the n,2n reaction that produces U237, emitting a lot of very low energy gamma rays in the fallout. For example, in the 1954 Romeo nuclear test (which, for simplicity, we quote since it used entirely natural LiD, with no expensive enrichment of the Li6 isotope whatsoever), the U238 jacket fission efficiency was reduced by capture as follows: 0.66 atom/fission of U239, 0.10 atom/fission of U237 and 0.23 atom/fission of U240 produced by fission, a total of 0.66 + 0.10 + 0.23 ~***



CLEAN NAVAJO (Los Alamos): 4.5 Mt, 5% fission. Lead pusher. No fissile spark plug. Possibly D+T gas capsules (BLUE) to act as all-fusion spark plugs (to produce neutrons for LiD fission into tritium for fusion during compression), but more likely it instead uses only primary neutrons for this, so the foam to slow down light-speed x-ray compression while primary stage neutrons are fissioning LiD near the primary; this process proceeds towards right hand side as x-rays diffuse through foam.



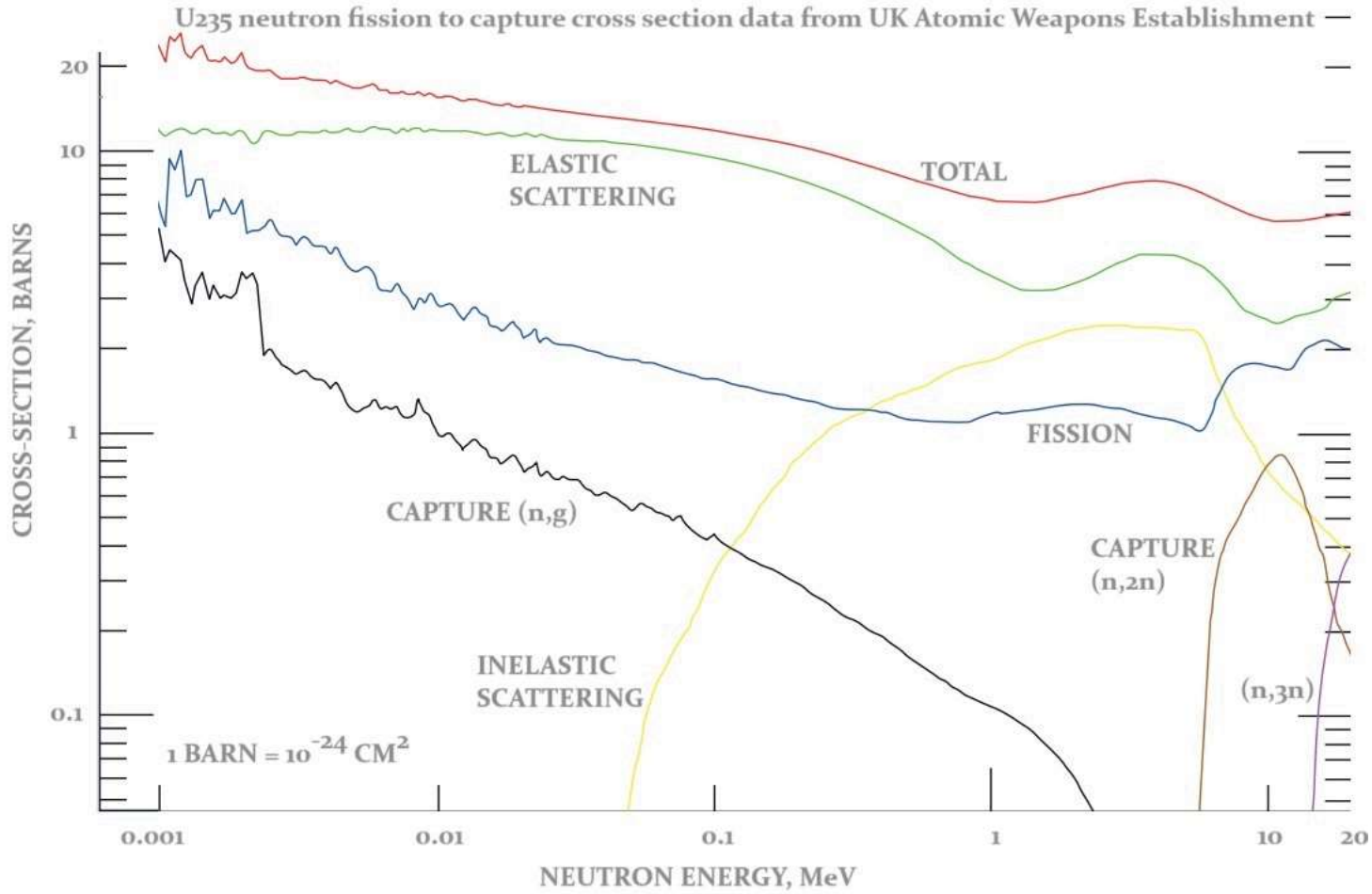
CLEAN ZUNI (Lawrence Livermore): 3.53 Mt, 15% fission. Lead pusher. U235 central spark plug in otherwise clean secondary (spark plug gives 10% of the total 15% fission yield, while primary stage gives the other 5%). This weapon therefore has a beryllium interstage neutron shield (unlike Navajo) to prevent fission of the spark plug by primary stage neutrons prior to secondary compression by x-rays. No foam is needed to slow x-rays because primary neutrons are not being used.

NOTE: schematic comparisons of key concepts; the two 1956 Redwing designs are not the same overall size (they were designed independently).

1 atom/fission, i.e. 50% fission in the U238 pusher, versus 50% non-fission neutron captures. So by using U235 in place of U238, you virtually eliminate the non-fission capture (see UK Atomic Weapons Establishment graph of fission and capture cross-sections for U235, shown below), which roughly halves the mass of the warhead, for a given fission yield. This same principle of using an outer U235/oralloy pusher instead of U238 to reduce mass - albeit with the secondary cylindrical "Sausage" shape now changed to a sphere - applies to today's miniaturised, high yield, low mass "MIRV" warheads. Just as the lower-yield W47 counter-intuitively used *more* expensive ingredients than the bulkier higher-yield B28, modern compact, high-yield oralloy-loaded warheads literally cost a bomb, just to keep the mass down! There is evidence Russia uses alternative ideas.

This is justified by the data given for a total U238 capture-to-fission ratio of 1 in the 11 megaton Romeo test and also the cross-sections for U235 capture and fission on the AWE graph for relevant neutron energy range of about 1-14 Mev. **If half the neutrons are captured in U238 without fission, then the maximum fission yield you can possibly get from "x" kg of U238 pusher is HALF the energy obtained from 100% fission of "x" kg of U238.** Since with U238 only about half the atoms can undergo fission by thermonuclear neutrons (because the other half undergo non-fission capture), the energy density (i.e., the Joules/kg produced by the fission explosion of the pusher) reached by an exploding U238 pusher is only **half** that reached by U235 (in which there is less non-fission capture of neutrons, which doubles the pusher mass without doubling the fission energy release). So a **U235 pusher will reach twice the temperature of a U238 pusher,** doubling its material heating of fusion fuel within, prolonging the fusion burn and thus increasing fusion burn efficiency. 10 MeV neutron energy is important since it allows for likely average scattering of 14.1 MeV D+T fusion neutrons and it is also the energy at which the most important capture reaction, the (n,2n) cross-section peaks for both U235 (peak of 0.88 barn at 10 Mev) and U238 (peak of 1.4 barns at 10 Mev). For 10 Mev neutrons, U235 and U238 have fission cross-sections of 1.8 and 1 barn, respectively. For 14 Mev neutrons, U238 has a (n,2n) cross section of 0.97 barn for U237 production. So ignoring non-fission captures, you need 1.8/1 = 1.8 times greater thickness of pusher for U238 than for U235, to achieve the same amount of fission. But this simple consideration ignores the x-ray ablation requirement of the explosing pusher, so there are several factors requiring detailed computer calculations, and/or nuclear testing.

Note: there is an extensive collection of declassified documents released after Chuck Hansen's final edition, Swords 2.0, which are now available at **https://web.archive.org/web/*/http://www.nnsa.energy.gov/sites/default/files/nnsa/foiareadingroom/***, being an internet-archive back-up of a now-removed US Government Freedom of Information Act Reading Room. Unfortunately they were only identified by number sequence, not by report title or content, in that reeding room, and so failed to achieve wide attention when originally released! (This includes extensive "Family Committee" H-bomb documentation and many long-delayed FOIA requests submitted originally by Hansen, but not released in time for inclusion in Swords 2.0.) As the extract below - from **declassified document RR00132** - shows, some declassified documents contained very detailed information or typewriter spaces that could only be filled by a single specific secret word (in this example, details of the W48 linear implosion tactical nuclear warhead, including the fact that it used PBX9404 plastic bonded explosive glued to the brittle beryllium neutron reflector around the plutonium core using Adiprene L100 adhesive!).



Source: AWE *Discovery*, issue 23, p28

ES&H/WM Safety Survey Report of W48 pit serial number 4902 HE Removal and Packaging Operations at the USDOE Pantex Plant

Beryllium neutron reflector is simply glued to high explosive in W48 linear implosion tactical nuclear warhead:

(Word beryllium fits the gaps.)

On November 12, 1992 at approximately 9:53 am, the beryllium shell of the W48 pit, serial # 4902, cracked during the normal HE removal process. The main charge was removed therefore this occurrence does not involve a nuclear explosive.[1] Less than 100g of residual HE remains bonded to the pit. The HE for the W48 is PBX 9404 and is bonded to the pit with Adiprene L100 adhesive. This safety survey reviewed the proposed procedures and safety precautions to complete the HE removal and package the pit into a container for shipment to Lawrence Livermore National Laboratories (LLNL). Though this proposed process is not time critical as in "emergency" proportions, it is time urgent in that every day adds potential risk. The factor that is primarily adding risk is that the crack in the beryllium shell exposes a small surface area of plutonium to the humid air in the containment bags.

Source: declassified report https://nnsa.energy.gov/sites/default/files/nnsa/foiareadingroom/RR00132.pdf (Liquid nitrogen and hot water were used to try to remove the glued on high explosive/HE from the pit.)

Varying the temperature does not help matters because at low temperatures radiation flow and heat capacity each vary about as T^3 so that the time required for heat flow, which depends on their ratio, will be unchanged. At higher temperatures radiation flow varies as T^2 and heat capacity as T^3, with consequent loss.

Bethe, Broyles, and Freeman will prepare a problem for either CPC or SEAC operation which is expected to give a good treatment of propagation along the channel.

7. Experiments planned for Snapper.

J-Division's primary interest is to investigate experimental techniques proposed for the Ivy test.

Declassified data on the radiation flow analysis for the 10-megaton Mike sausage:
http://nnsa.energy.gov/sites/default/files/nnsa/foiareadingroom/RR00198.pdf
Note that the "no-go theorem" against any effect from varying the temperature was later proved false by John Nuckolls (like Teller's anti-compression "no-go theorem"

ABOVE: Declassified data on the radiation flow analysis for the 10 megaton Mike sausage: **http://nnsa.energy.gov/sites/default/files/nnsa/foiareadingroom/RR00198.pdf** Note that the simplistic "no-go theorem" given in this extract, against any effect from varying the temperature to help the radiation channelling, was later proved false by John H. Nuckolls (like Teller's anti-compression "no-go theorem" was later proved false), since lowered temperature delivers energy where it is needed while massively reducing radiation losses (which go as the fourth power of temperature/x-ray energy in kev).

MINUTES

Thirty-fifth Meeting of the General Advisory Committee
to the U. S. Atomic Energy Commission

May 14, 15, and 16, 1953
Washington, D. C.

[redacted]

CLASSIFICATION CANCELLED
WITH DELETIONS
BY AUTHORITY OF DOE/OC
Carl Wilson 5/23/84
REVIEWED BY DATE
HR Schmidt 8/5/85

US DOE ARCHIVES
RG [illegible] SECRETARIAT

Lithium-6

BETHE'S Li-6 ERROR:

Lithium-6, Dr. Bethe continued, is useful mainly for large weapons, and for all thermonuclear devices. Lithium-7 won't work because it doesn't give tritium. The threshold for Li^7-n,nT is 3-4 Mev and the reaction probably cannot compete with the slowing down of the fast neutrons. Dr. Bradbury said that one of the objects of Castle is to see what normal lithium will do.

Dr. Bethe said there are three devices in which calculations say Li-6 is of interest: [redacted]

In [redacted] the question is whether the thermonuclear reaction will propagate in LiD. According to Matterhorn, propagation seems reasonably well assured at [redacted] and at diameters usually considered little is to be gained by greater enrichment. (With high concentration of Li-6 the diameter of the [redacted] might be reduced enough to save [redacted]

https://archive.org/details/WarPlanUK/War%20Plan%20UK/page/n373/mode/2up?view=theater

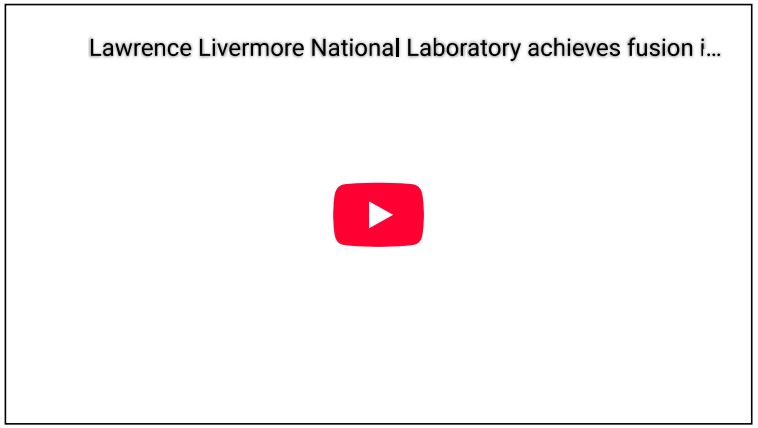
SECOND SESSION
(May 14, 1953)

Meeting with the JCAE

At 2:30 p.m. the Committee met with the Joint Congressional Committee in room F-88 of the Capitol. Mr. W. Sterling Cole, Chairman of the JCAE, presided. Others present from the JCAE and its staff were: Representative Hinshaw, Patterson, Durham; Mr. William L. Borden, Mr. Walter Hamilton, and Mr. J. K. Mansfield. Representatives Holifield and Price, and Senator Bricker entered during the meeting. All members of the GAC, the Secretary, and Mr. Tomei were present.

Agnew and Rhodes claimed falsely that the fission of lithium-7 by 14.1 MeV T+D fusion neutrons to yield more tritium was not known. It was known, along with a 3-4 MeV threshold for Li-7 fission! Bethe ignored this reaction by claiming falsely tha 14.1 MeV neutrons would be slowed to below 3 Me

ABOVE: **Hans A. Bethe's disastrous back-of-the-envelope nonsense "non-go theorem" against lithium-7 fission into tritium by 14.1 Mev D+T neutrons in Bravo (which contained 40% lithium-6 and 60% lithium-7; unnecessarily enriched - at great expense and effort - from the natural 7.42% lithum-6 abundance). It was Bethe's nonsense "physics" speculation, unbacked by serious calculation, who caused Bravo to go off at 2.5 times the expected 6 megatons and therefore for the Japanese Lucky Dragon tuna trawler crew in the maximum fallout hotspot area 80 miles downwind to be contaminated by fallout, and also for Rongelap's people to be contaminated ("accidents" that inevitably kickstarted the originally limited early 1950s USSR funded Communist Party anti-nuclear deterrence movements in the West into mainstream media and thus politics). There was simply no solid basis for assuming that the highly penetrating 14.1 Mev neutrons would be significantly slowed by scattering in the fuel before hitting lithium-7 nuclei. Even teller's 1950 report LA-643 at page 17 estimated that in a fission-fusion Alarm Clock, the ratio of 14 Mev to 2.5 Mev neutrons was 0.7/0.2 = 3.5. Bethe's complacently bad guesswork-based physics also led to the EMP fiasco for high altitude bursts, after he failed to predict the geomagnetic field deflection of Compton electrons at high altitude in his secret report "Electromagnetic Signal Expected from High-Altitude Test", Los Alamos report LA-2173, October 1957, Secret. He repeatedly caused nuclear weapons effects study disasters.** For the true **utility of lithium-7, which is actually BETTER than lithum-6 at tritium production when struck by 14.1 Mev D+T fusion neutrons, and its consequences for cheap isentropically compressed fusion capsules in Russian neutron bombs, please see my paper here which gives a graph of lithium isotopic cross section versus neutron energy, plus the results when Britain used cheap lithium-7 in Grapple Y to yield 3 megatons (having got lower yields with costly lithium-6 in previous tests!)**.



Update (15 Dec 2023): **PDF uploaded of UK DAMAGE BY NUCLEAR WEAPONS (linked here on Internet Archive)** - secret **1000 pages UK and USA nuclear weapon test effects analysis, and protective measures determined at those tests (not guesswork) relevant to escalation threats by Russia for EU invasion (linked here at wordpress)** in response to Ukraine potentially joining the EU (this is **now fully declassified without deletions, and in the UK National Archives at Kew**):

1016 pages summary of UK & USA nuclear weapons test data, Damage from Nuclear Weapons

WO 320/8
ROYAL MILITARY COLLEGE OF SCIENCE INFORMATION SERVICE
Retain 87
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CONFIDENTIAL DISCREET

W 559

MINISTRY OF AVIATION

D1/57

DAMAGE BY NUCLEAR WEAPONS

A MANUAL OF BASIC TARGET RESPONSE DATA

SECURITY NOTE

This document has been issued in parts over an extended period and much of the earlier material now has a lower classification than it carried at the time of issue. Notwithstanding the grading shown on individual sheets dated earlier than March, 1959, the whole of the contents are now covered by the grading CONFIDENTIAL DISCREET.

Prepared by the Director General of Atomic Weapons
Ministry of Aviation.

Originally classified Secret-Atomic; later regraded Confidential

9.8.3. Indirect Blast Injury: Casualty Estimates

Most blast casualties in cities are caused by damage to buildings. The occupants may be crushed, trapped, or struck by building materials projected by the blast. The number of casualties caused by a nuclear weapon will, of course, be dependent on the degree of protection afforded by the buildings and upon the extent to which advantage has been taken of such protection. For these reasons estimates of casualties cannot be expected to be more than rough guides to be used for Civil Defence planning.

Casualty figures from Hiroshima and Nagaski cannot be directly applied to Western conditions because of differences in house construction, and because the populations of these cities were not aware of the dangers to which they were exposed. But a method has been devised (1) in which the estimates of damage to British houses, (given by the British Mission to Japan), are used in conjunction with H.E. data from the last war on casualty rates in damaged houses to provide casualty rates for nuclear weapons.

The H.E. material was, of course, based on the high standard of rescue possible in the last war, and it has been necessary to adjust the casualty rates, since organised rescue of trapped occupants from the more severely damaged buildings will hardly be possible in nuclear war. The adjusted rates are given in Table I below, and can be used to derive casualty estimates.

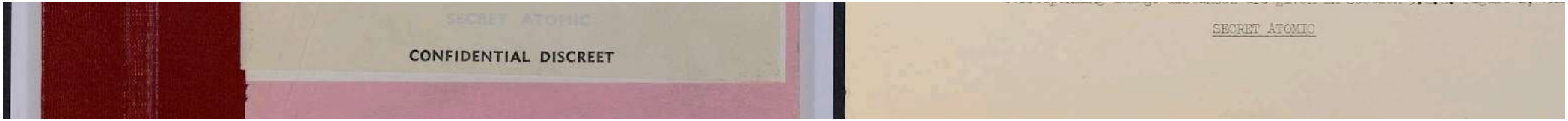
TABLE I. CASUALTY RATES FOR OCCUPANTS OF BRITISH HOUSES

DAMAGE CATEGORY	KILLED	SERIOUSLY INJURED	LIGHTLY INJURED
A (> 15 p.s.i.)	80%	5%	1%
B (15-7½ p.s.i.)	40%	7%	5%
Cb(7½-3 p.s.i.)	-	9%	6%
Ca(3-1¾ p.s.i.)	-	2%	2%
D (1¾-1 p.s.i.)	-	-	-

Note: (1) these casualty rates are related to blast effects only.
(2) typical 2-storey British houses assumed, with 9" or 11" brick walls.
(3) assumed that whole population is in such houses, taking best advantage of protection afforded.
(4) for definitions of damage categories see Section 9.1.3.

The pressure ranges for the various categories of damage given in Table I may be used in conjunction with the appropriate blast pressure curves to derive the extent of damage for any power of nuclear weapon.

American analysis of somewhat limited Japanese data for reinforced concrete structures suggests that on account of their much greater blast resistance, collapse is associated with almost 100% fatality. Moderate damage may be associated with 10% dead, 15% seriously and 20% lightly injured and light damage with 5%, 5% and 15% respectively. The corresponding damage distances are given in Section 9.2.2, Figure 2, and

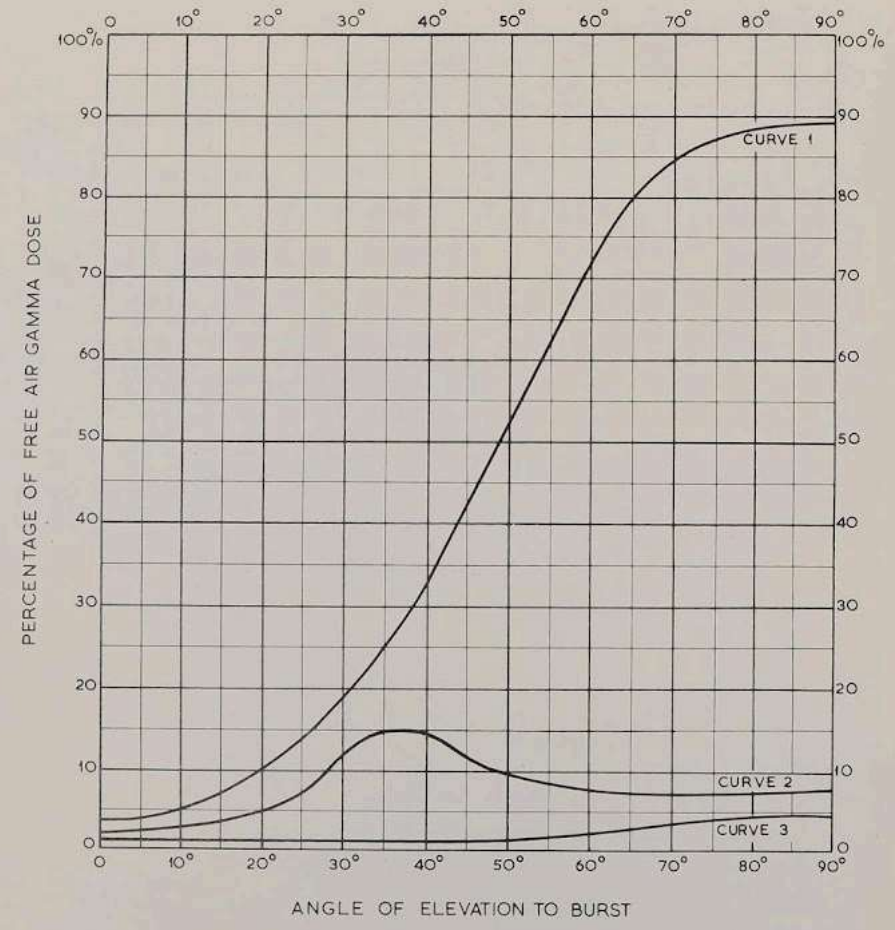

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SECRET
U.K EYES ONLY

PART VII
CHAPTER 5
SECTION 5.1.6
FIGURE 1

CURVE 1	OPEN TRENCHES
CURVE 2	TRENCHES WITH 18" RAISED EARTH COVER
CURVE 3	TRENCHES WITH 18" FLUSH EARTH COVER



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D1/57
Mar. 1958

Part VII
Chapter 5
Section 5.2.5

5.2.5 Lethal range of neutrons

The lethal range of neutrons is the distance at which the neutron dose h fallen to the LD-50. It can be assessed, for unshielded persons, from the neutron dose/distance relationship (Figures 8 and 9 of Sections 3.1, Chapter if the power of the weapon and its relative neutron yield are known. Alternatively it can be deduced from the neutron flux/distance relationship if the value of the r.b.e. appropriate to the fast protons produced in tissue is also known.

Table 1 gives the lethal ranges obtained from these curves in conjunctio with Table 1 of Section 5.2.4, for a number of yields. It also gives the lethal range of the gamma radiation for comparison. The Table shows that whe neutron flux measurements only are available for a weapon the lethal range ca be estimated from these measurements assuming a proton r.b.e. value of 1.3. It will be seen that even for high neutron yield weapons the gamma radiation lethal range is greater than that of the neutrons for yields in excess of about 20 KT.

TABLE 1

Lethal Ranges for Neutron and Gamma Radiation (Feet)

Weapon Yield KT	Low Neutron yield weapons			High neutron yield weapons			Gamma Rays
	Dose Data	Flux Data		Dose Data	Flux Data		
		Proton r.b.e. 1.3	r.b.e. 6.5		Proton r.b.e. 1.3	r.b.e. 6.5	
1.0	1230	1290	1710	2460	2400	2970	2070
10	2100	2130	2670	3600	3480	4140	3390
100	3150	3150	3750	4830	4680	5430	5280
1000	4290	4290	5040	6210	6000	6750	7950

SHIELDING VALUES FOR TRENCHES
AGAINST GAMMA RADIATION

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Area smoke screens were used in World War II to protect important targets from observation, and there is considerable operational experience available from the use of these screens. However, since the opacity requirement and conditions of irradiation are different in the two cases, it is not possible at present to scale up the effect and quantities required and to give a full evaluation.

In the U.S., the use of fog oil smoke has been investigated both in the laboratory and in the field, and has been given a full-scale test in an atomic explosion. It was concluded that 200-400 gallons of fog oil per square mile of screen would reduce the thermal radiation from 10-100 KT weapons detonated at optimum height, to 3 cals/cm^2 or less at points immediately outside the 6-8 p.s.i. blast contour. Further details are given in Reference (2). A theoretical treatment of this problem is given in References (3) and (4).

Thermal attenuation by fog oil smoke is essentially by scattering alone. According to Reference (5), a material which included absorbing properties as well, such as carbon smoke, is likely to prove more economical. The weight of material in suspension could thereby be reduced, probably by a factor of a half or a third.

Reference (6) gives an account of field trials made to assess the attenuation of solar radiation by zinc hexachloroethane (HCE), which is a partial absorber owing to the presence of carbon in the smoke. From the results obtained an estimate is made of the effectiveness of HCE area smoke screens in attenuating thermal radiation from nuclear explosions.

The practical utility of smoke screens, assuming that the quantities and effort required are acceptable, turns very largely upon the frequency of occurrence of suitable weather conditions. It has been estimated that over U.S. cities meteorological conditions are favourable to the formation of smoke screens for 90-95% of the time if area sources of smoke are used, and 40-80% if line sources are employed, (Reference (2)).

References

(1) Staff Officers' Manual - Atomic Weapons Employment, U.S. Dept. of the Army, FM 101-31A p.10. (Secret Atomic)

(2) Engquist, E.H. CRLR.466. "Interim Comprehensive Report on Thermal Radiation Attenuation by Oil - Fog Smoke Screens". U.S. Chemical Corps. 23.3.55.

(3) Chu, C.M., and Churchill, S.W. J.Phys.Chem., 1955, Vol. 59, p.855.

(4) Sliepcevich, C.W. "Attenuation of Thermal Radiation by a Dispersion of Oil Particles", Parts I and II. University of Michigan, 1954.

(5) Ford, J.J. CRLR.252. "Thermal Attenuation Effects of Black

2.2. Diffuse Atmospheric Transmission. Windows.

For an accurate assessment of the amount of thermal radiation falling on a surface inclined at an angle to the source or upon a surface receiving radiation from a limited field of view (e.g. through a window) it is necessary to know the polar distribution of the radiation on arrival.

Some limited experimental work suggests that the peak intensity of the thermal radiation reaching a surface from a field of view β radians diameter directed towards the source, is given by:-

$$\overline{T}_\beta = \overline{T} + g\,(1 - \overline{T})\,(1 - e^{-\beta})$$

where $\overline{T}$ is the specular transmittance

$\overline{T}_\beta$ is the apparent transmittence for the field of view β.

$\overline{T} = e^{-\mu D}$ where μ is the mean attenuation coefficient for all wavelengths in the fireball spectrum and D is the distance of the receiving surface from the point of burst.

In the formula above $(1 - \overline{T})$ represents the amount of scattered radiation. g is a constant varying between $\frac{1}{2}$ and 1 representing the loss of scattered light to the ground. $(1 - e^{-\beta})$ is an empirical correction, determined by experiment, for the fraction of the scattered radiation coming from the field of view β. Extended experiments in the U.K. seem to suggest that doses estimated in this way will in general overestimate the diffuse dose.

A more detailed treatment of the above formula is given in M.E.A.W. Data Sheet 3.5A and M.E.A.W. Fig. 3.5.2 shows $T\beta$ as a function of $\overline{T}$ for various values of β and g.

Detailed mathematical treatments of the radiation scattering problem have been attempted in References (1) and (2).

A less sophisticated method of attack is to assume the radiation reaches the surface in three ways:-

(a) By direct specular transmission.

(b) By two rectilinear (attenuated paths) with one single scattering between them.

(c) The residual scattered radiation is then assumed to be isotropically diffuse and to reach the source uniformly from all directions.

Calculations based on this method of analysis are likely to be adequately accurate for many purposes. Some experimental and theoretical results are discussed in Reference (3).

Smoke". U.S. Chemical Corps, 10.9.53.

(6) Sawyer, K.F., and Wootten, N.W. "Field Trials on the Attenuation of Solar Radiation by Smoke Screens". Porton Technical Paper (R)1. August, 1956. (Confidential/Discreet)

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TABLE 4

Thermal Constants for Various Materials

Material	Density ρ	Specific heat c	Conductivity K	Diffusivity k
	gm/cm^3	cal/gm	cal/cm/sec/°C	cm^2/sec
WOODS				
Western red cedar	0.36	0.34	21×10^{-5}	1.73×10^{-3}
American white wood	0.47	0.34	29×10^{-5}	2.0×10^{-3}
African mahogany	0.56	0.34	33×10^{-5}	2.0×10^{-3}
Freijo	0.58	0.34	33×10^{-5}	2.0×10^{-3}
Oak	0.61	0.34	35×10^{-5}	2.0×10^{-3}
Iroko	0.72	0.34	41×10^{-5}	2.0×10^{-3}
METALS				
Copper	8.9	0.09	0.93	1.14
Silver	10.5	0.56	1.00	0.171
Gold	9.30	0.03	0.93	1.18
Magnesium	1.7	0.24	0.38	0.91
Aluminium	2.7	0.21	0.48	0.86
Zinc	7.1	0.92	0.27	0.111
Tin	7.3	0.53	0.15	0.038
Brass 70 : 30	8.5	0.09	0.25	0.33
Platinum	21.5	0.03	0.17	0.25
Lead	11.3	0.03	0.08	0.25
(0.1%C) mild steel	7.9	0.12	0.11	0.12
Cast iron	7.4	0.14	0.12	0.12
Bismuth	9.8	0.03	0.02	0.07
Mercury	13.6	0.03	0.02	0.04
BUILDING MATERIALS				
Fibre insulating board	0.24	0.34	8.5×10^{-5}	1.04×10^{-3}
Brick	1.44-2.24	0.20-0.22	$13\text{-}32 \times 10^{-4}$	$44\text{-}67 \times 10^{-4}$
Concrete (gravel)	2.16-2.29	0.22-0.23	$57\text{-}33 \times 10^{-4}$	$65\text{-}120 \times 10^{-4}$
Foamed slag concrete	1.04	0.23	5.7×10^{-4}	24×10^{-4}
Cellular concrete	0.64	0.25	3.4×10^{-4}	21×10^{-4}
Glass	2.11-2.6	0.16	2.1×10^{-3}	5.2×10^{-3}
Slag wool	0.19-0.30	0.18	$0.9\text{-}1.4 \times 10^{-4}$	$26\text{-}27 \times 10^{-4}$
BOARDS OR BLOCKS				
Asbestos paper				
Corrugated	0.25	0.24	1.46×10^{-4}	24.2×10^{-4}
Laminated	0.35	0.24	1.5×10^{-4}	18×10^{-4}
Corkboard	0.13	0.42	1.0×10^{-4}	18×10^{-4}
Fibre glass	0.032	0.13	8.5×10^{-5}	1.9×10^{-2}
POWDERS				
			1.2×10^{-4}	26.8×10^{-4}

2.4. Effectiveness of Shielding

Apart from the effects of scattering the thermal radiation from a nuclear explosion travels in straight lines from the fireball. Any solid opaque material such as a wall, a hill, or a tree between a given target and the fireball may act as a shield and provide protection from thermal radiation. Instances of such shielding observed after a nuclear explosion in Japan are given in Reference (1).

A shield which merely intervenes between a given target and the ball of fire, but does not surround the target, may not be entirely effective under hazy atmospheric conditions. A large proportion of the thermal radiation received, especially at considerable distances from the explosion, has undergone scattering (see Sections 2.1, 2.2, and 2.3) and will arrive from all directions, not merely that from the point of burst. It should also be borne in mind that at close ranges, where the fireball subtends a relatively large angle, the shadowing effects of intervening objects are less than are experienced with the sun.

An assessment of the value to troops of slit trenches, as protection against thermal and gamma radiations from nuclear explosions, is given in Reference (2). It is concluded that open slit trenches afford considerable overall protection to personnel against thermal and gamma effects of nuclear weapons. Even when least effective (i.e. against high air bursts), they may be expected to save about 40% of the total casualties (from nuclear and thermal radiation) which would result from all men being in the open. This figure increases with decreasing burst height, up to a maximum of about 97% for low air bursts. Trenches with thermal screens afford much greater protection than open trenches against high air bursts, but about the same protection against low air bursts.

In a report on the vulnerability of Armoured Fighting Vehicles and their crews to nuclear weapons (Reference (3)), an assessment is made of the protection afforded against thermal radiation. It is concluded that closed-down vehicles give good protection against thermal radiation, but that there is a possibility of burns being caused by the transmission of radiation through optical instruments.

Transparent materials such as glass and plastics allow thermal radiation to pass through only slightly attenuated. Methods of treating window-glass to provide heat radiation shields are described in Reference (4). These methods consist in applying a coating to the window which reduces the radiation transmitted and scatters the part which is transmitted. Thus not only is the total quantity of heat entering the room reduced, but its intensity is more evenly distributed. The best coatings for this purpose are white, and those that last longest are of the high gloss or cement paint type; emulsion paints are ineffective. The protection is reduced if the windows are blown out by the blast wave before all the thermal energy is delivered.

References

(1) Effects of Nuclear Weapons. U.S.A.E.C., 1957, pages 312-316.

Charcoal	0.18	0.29	1.2 x 10^{-4}	0.0018
Ground cork	0.15	0.48	1 x 10^{-4}	0.0014
Soil (Average)	2.5	0.2	23 x 10^{-4}	0.0046
Soil (Sandy dry)	1.65	0.19	6.3 x 10^{-4}	0.0020
Soil (Sandy moist 8%)	1.75	0.24	14 x 10^{-4}	0.0033

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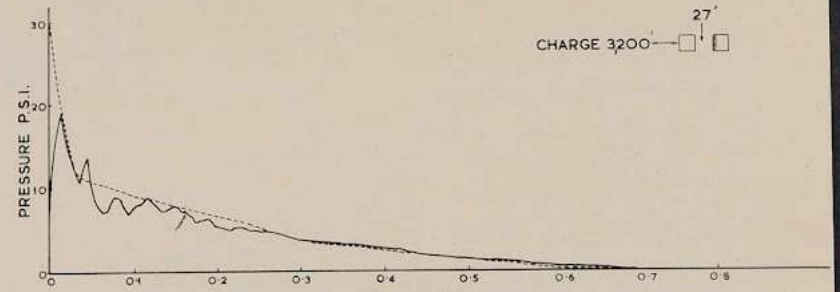
(2) A.O.R.G. Report No. 12/55 "The Protective Value to Personnel of Slit Trenches against Thermal and Gamma Radiation Effects of Nuclear Explosions. (Secret/U.K. Eyes Only)

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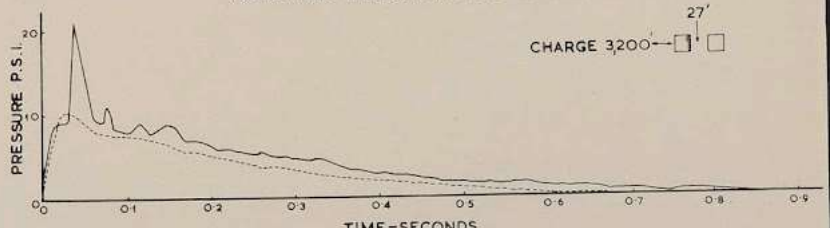
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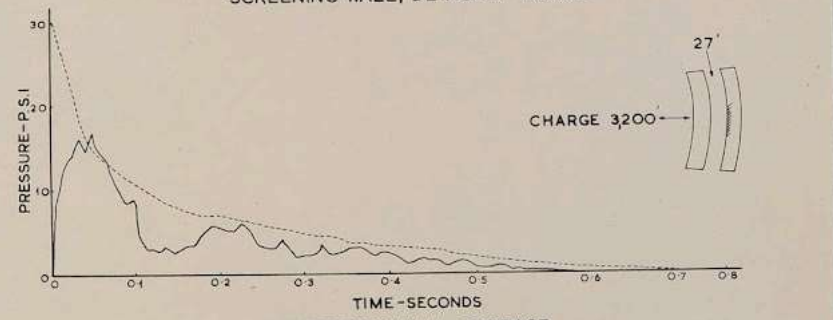
PART III
CHAPTER 3
SECTION 3.2
FIGURE 1



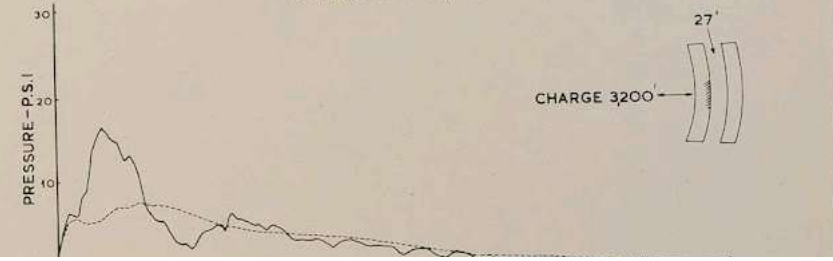
SCREENED WALL, DETACHED HOUSE



SCREENING WALL, DETACHED HOUSE



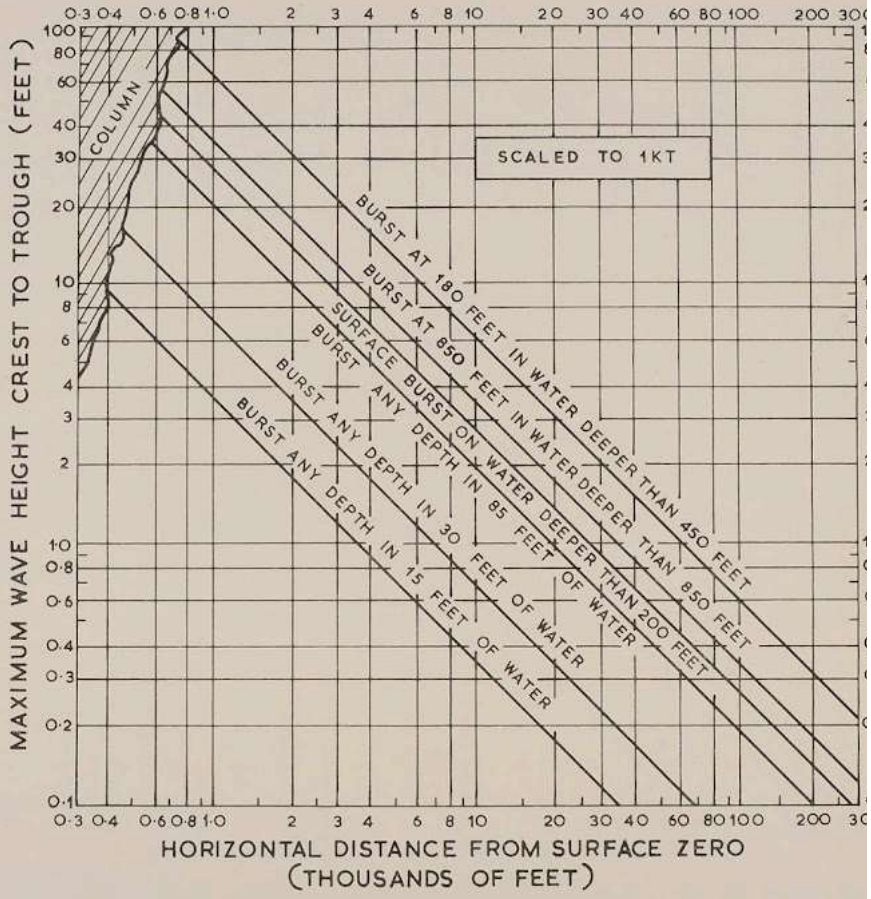
SCREENED WALL, TERRACE

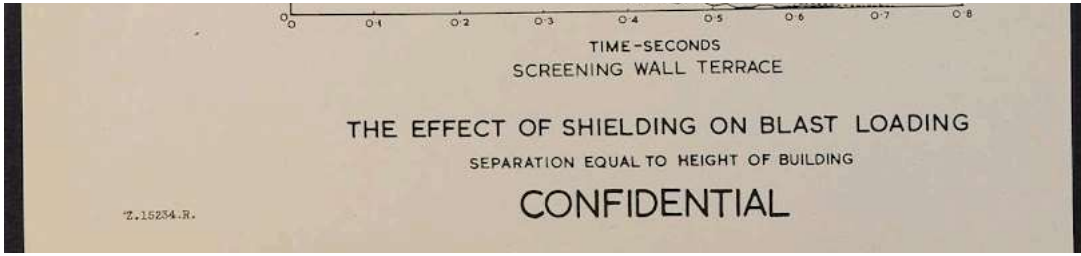


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PART V
CHAPTER 5
SECTION 5.6
FIGURE 1





THE EFFECT OF SHIELDING ON BLAST LOADING

SEPARATION EQUAL TO HEIGHT OF BUILDING

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ESTIMATED WAVE HEIGHTS FOR WATER BURSTS

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FIGURE 1

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ENTRY OF BLAST INTO A TYPE S.1. SURFACE SHELTER.

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FIGURE 1.

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DAMAGE TO REINFORCED CONCRETE 3-STOREY CITADELS WITH REINFORCED CONCRETE WALLS.

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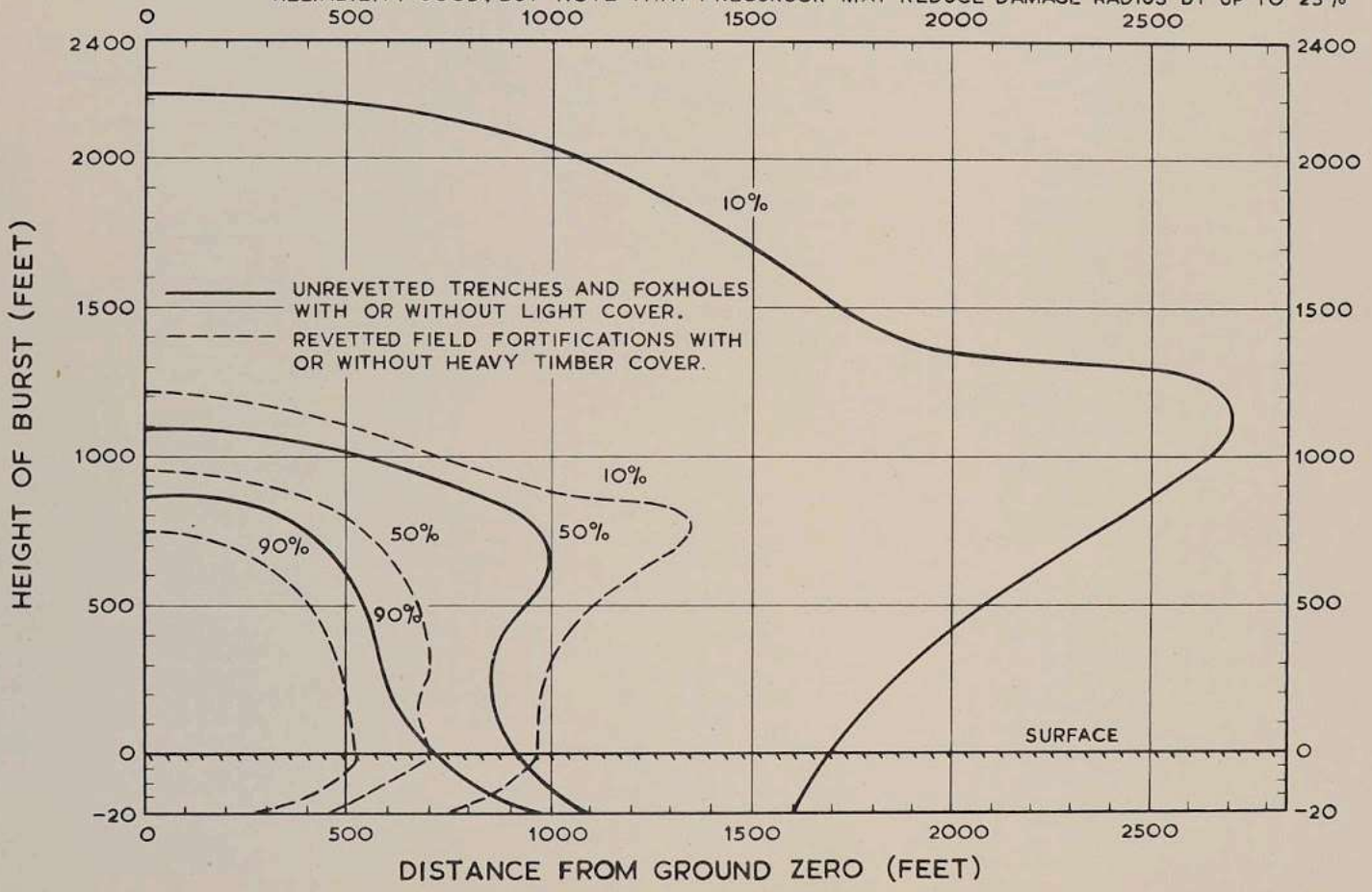
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DAMAGE TO FIELD DEFENCES. 1 KT.

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PROBABILITIES OF COLLAPSE IN AVERAGE SOIL; FOR OTHER SOILS SEE 9.3.2.
FOR OTHER YIELDS SCALE BURST HEIGHT AND DAMAGE RADIUS WITH $W^{\frac{1}{3}}$.
FOR DEEPER BURSTS SEE 9.4.1.
RELIABILITY GOOD, BUT NOTE THAT PRECURSOR MAY REDUCE DAMAGE RADIUS BY UP TO 25%



PART III
CHAPTER 9
SECTION 9.3.2.
FIGURE 1

SECRET ATOMIC

9.4.2. Tanks, Armoured Vehicles, Artillery, Ordnance Items, etc. - Tanks and artillery are about equally vulnerable except in the light damage category. Table I indicates which set of curves best fits the experimental data for other items of military ordnance. Examples are also given of damage levels for the various items. In all cases scaling to other yields is with $W^{\frac{1}{3}}$ for height of burst, and with $W^{0.4}$ for damage distances. Note that the curves apply to light and heavy vehicles; light, medium and heavy artillery; and light, medium and heavy tanks. The artillery curves include anti-aircraft artillery except for the electronic fire control equipment, which is discussed in Section 9.4.4. Thermal damage to ordnance equipment is generally superficial, such as scorching of paint and tyres. Canvas covers may be ignited from thermal radiation at energies ranging from 15 - 50 calories per sq. c.m. from a 1 KT burst, depending on composition, weight, impregnation, etc.

TABLE I - DAMAGE TO ORDNANCE ITEMS

Item	Damage Curves Most Closely Related	Examples of Severe Moderate and Light Damage
Tanks, all types	Sect.9.4.2. Fig.1	S- extensive turret, main armament and track damage - possible dismemberment. M- overturning, track and turret damage. L- antenna damage.
Artillery	Sect.9.4.2. Fig.1.	S- extensive recoil mechanism, wheel and trail damage, possible dismemberment. M- bent and twisted trails, some recoil mechanism damage, wheels may be torn off. L- sight glass breakage.
Mortars and recoil-less rifles	Sect.9.4.2. Fig.1 (for light damage use artillery curve)	S- Dismemberment. M - Twisted standards and mountings L- Sight breakage
Small arms and machine guns	Sect.9.4.2. Fig.1 (for light damage use artillery curve)	S- Dismemberment. M - Broken stocks, twisted and broken mountings. L - Cracked stocks
Rocket launchers	Sect.9.5.3. Fig.1	S-Torn to pieces. M - Twisted tube. L-Sight damage
LVT's and DUKW's (on land)	Sect.9.5.3. Fig.1	S- Great distortion and possible rupture of hull. M - Hull distortion, track damage. L - Glass breakage

TABLE I - Overpressures in p.s.i. Required to Detonate Various Mines

Country	Mine	0"-12" Depth of Burial				12"-24" Depth of Burial			
		Percent detonations - 90%		10%		90%		10%	
		Rise Time		Rise Time		Rise Time		Rise Time	
		Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow
Belgium	PRB ND-49 Heavy Model A/T	20	30	17	25	30	30	25	25
	PRB ND-49 Light Model A/T	20	30	17	25	30	30	25	25
France	Model 1947 A/T	3	3	(*)	(*)	5	5	1.5	1.5
	Model 1948 A/T	15	20	10	15	20	20	15	15
	Model 1948 Plate Charge offset pressure	4	4	1.5	1.5	6	6	2	2
	Model 1951 Undetectable buried spider plate	5	5	2	2	7	7	3	3
	Model 1951 Shaped Charge, steel, offset pressure	4	4	1.5	1.5	6	6	2	2
	Model 1951 Shaped Charge, bakelite offset pressure	10	15	8	12	15	15	12	12
	Model 1948 A/P	4	4	1.5	1.5	6	6	2	2
Germany	TM1-35 A/T	4	4	1.5	1.5	6	6	2	2
	TM1-35 Steel A/T	4	4	1.5	1.5	6	6	2	2
	RMI-42 A/T	17	25	15	20	25	25	20	20
	SCHU A/P	2	2	(*)	(*)	3	3	(*)	(*)
Italy	CS 42/2 A/T	4	4	1.5	1.5	6	6	2	2
	CS 42/3 A/T	4	4	1.5	1.5	6	6	2	2
	CC 48 Shaped Charge A/T	7	7	3	3	9	9	5	5
	P-1 A/T	12	18	9	14	18	18	14	14
	P-2 A/T	12	18	9	14	18	18	14	14
	R A/P	2	2	(*)	(*)	3	3	(*)	(*)
	RM A/P	2	2	(*)	(*)	3	3	(*)	(*)
Turkey	4.4 A/T	7	7	3	3	9	9	5	5
	9.9 A/T	4	4	1.5	1.5	6	6	2	2
U.K.	Mark V (HC) - Buried Spider Plate	10	15	7	11	15	15	11	11
	Mark V (GS) - Buried Spider Plate	10	15	7	11	15	15	11	11
	No.5 Mk. 1 A/P	3	3	(*)	(*)	5	5	1.5	1.5
	No.75 Mk.II	7	7	3	3	9	9	5	5
U.S.A.	M-6 A/T	10	15	7	11	15	15	11	11
	M-7 A/T	35	35	30	30	35	35	30	30
	M-15 A/T	10	15	7	11	15	15	11	11
	M-14 A/P	7	7	3	3	9	9	5	5
	T-18 A/T	10	15	8	12	15	15	12	12
	T-20 A/P	3	3	(*)	(*)	5	5	1.5	1.5
U.S.S.R.	YAM-5 A/T	15	15	11	11	15	15	11	11
	YAM-5K A/T	14	14	10	10	14	14	10	10
	YAM-5M A/T	16	16	12	12	16	16	12	12
	YAM-5U A/T	15	15	11	11	15	15	11	11
	TMS-B A/T	5	5	3	3	8	8	4	4
	TMD-B A/T	15	15	11	11	15	15	11	11
	TM-41 A/T	25	35	20	30	35	35	30	30
	PMP-6 A/P	2	2	(*)	(*)	3	3	(*)	(*)
	PMD-7 A/P	2	2	(*)	(*)	3	3	(*)	(*)

* These mines may detonate in significant percentages at very low pressures (i.e. less than 1.5 p.s.i.


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PART III
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FIGURE 1

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DAMAGE TO TANKS, FIELD ARTILLERY, ETC. 1K.T.

SCALE HEIGHT OF BURST WITH $W^{\frac{1}{3}}$
SCALE DAMAGE DISTANCE WITH $W^{0.4}$
FOR "DUG IN" TARGETS SEE 9.4.1. FOR EXAMPLES OF DAMAGE LEVELS SEE 9.4.2. RELIABILITY EXCELLENT

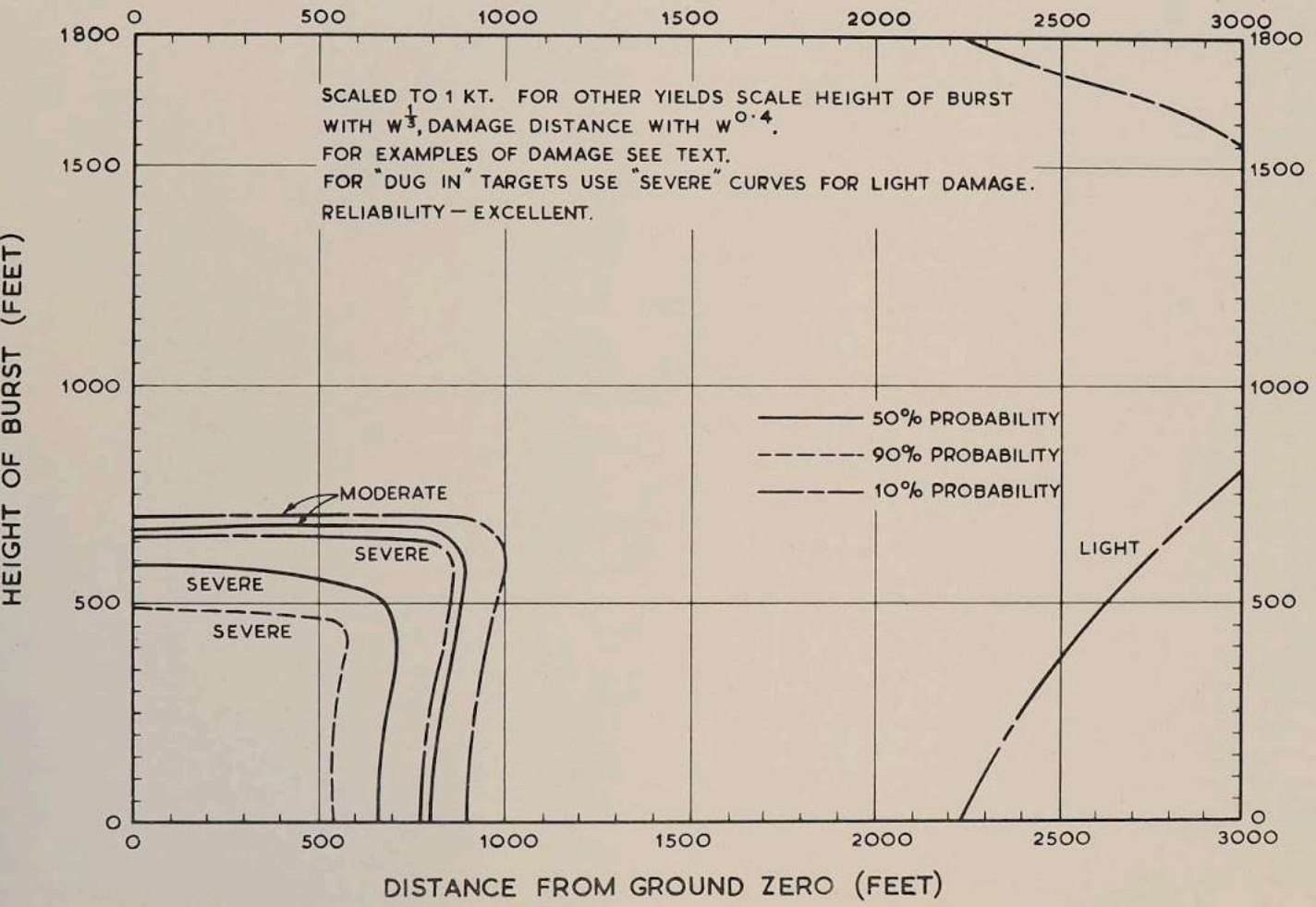
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DAMAGE TO MOTOR TRANSPORT

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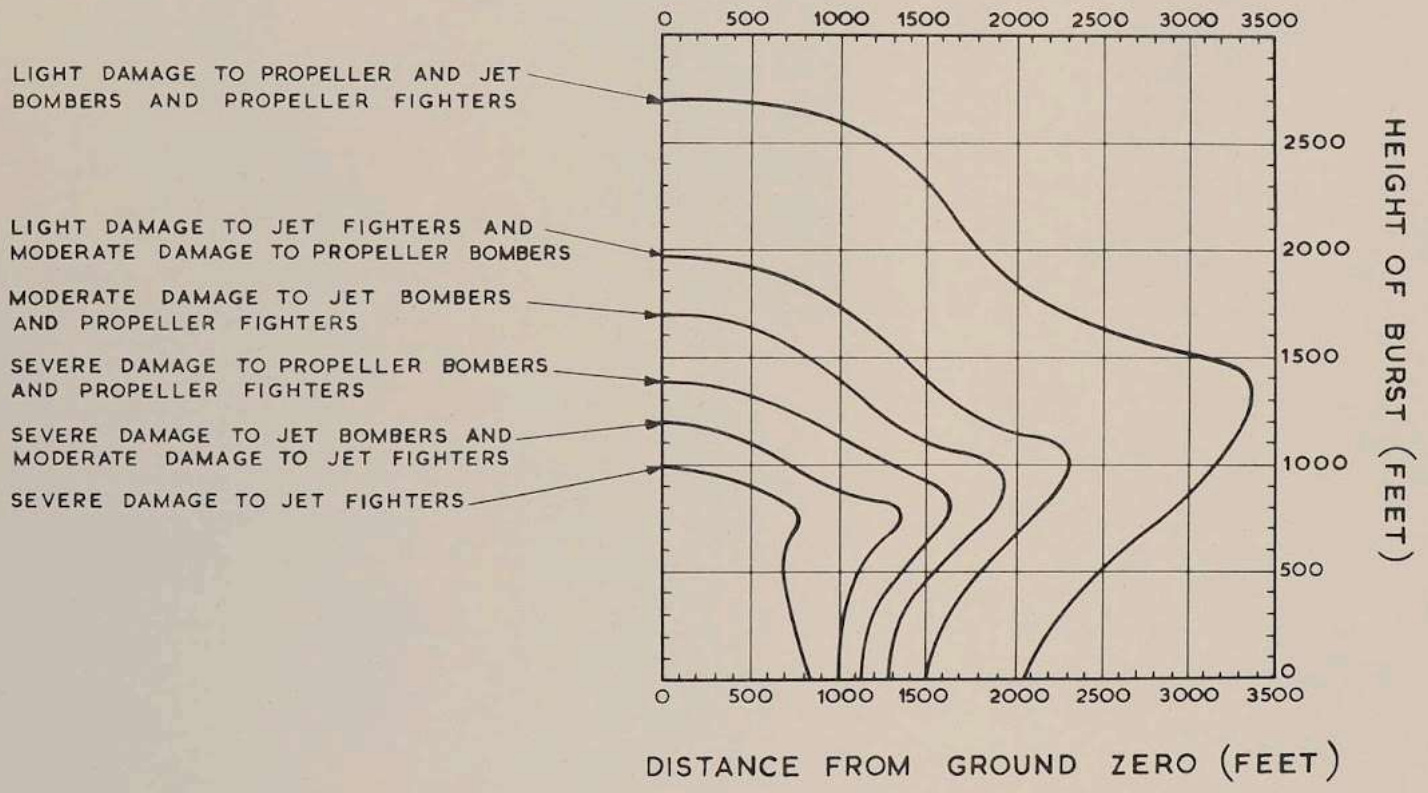
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FIGURE 1

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FIGURE 3



DAMAGE TO AIRCRAFT ON THE GROUND.
COMBAT TYPES, NOSE-ON ORIENTATION

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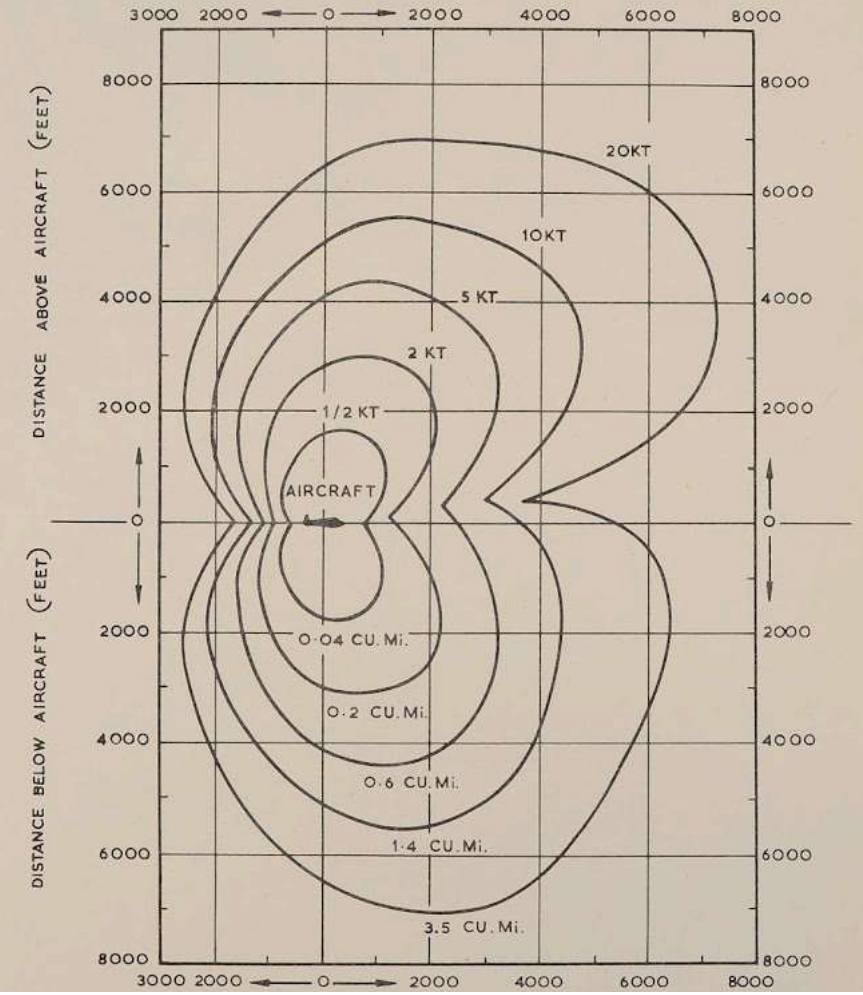
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FIGURE 1

THESE CURVES ARE PRESENTED PRIMARILY TO ILLUSTRATE GENERAL SHAPES AND MAGNITUDES OF LETHAL GUST ENVELOPES FOR BOMBER TYPE AIRCRAFT. IT IS NOT INTENDED THAT NUMERICAL DATA DERIVED BE APPLIED DIRECTLY TO ANY SPECIFIC AIRCRAFT MODELS. CUBE ROOT SCALING OF THE 20 KT CURVE WILL INDICATE APPROXIMATE ENVELOPES FOR LARGER YIELDS.



9.7. SHIPS AND MARITIME OBJECTS

9.7.1. Surface Vessels *

In addition to damage by water shock and surface waves, as described in Part V, mechanical damage to surface ships may be caused by air blast. Thermal damage to shipping is not considered an important factor in that it does not, of itself, cause sinking or immobilisation. As the depth of a burst is decreased, a transition from water shock to air blast as the controlling damage parameter occurs. Air blast is also the controlling damage parameter in the case of air bursts. Peak pressure is considered a satisfactory parameter for estimating damage to ships from air blast. A peak overpressure of 5 p.s.i. causes light damage to most types of surface ships. The peak overpressures required for severe damage vary from 25 p.s.i. for destroyers, to 45 p.s.i. for battleships; Figures 1 and 2 give damage ranges for a 1 KT burst. For heights of burst less than 600 ft., and depths of burst less than 800 ft., heights and distances scale with $W^{\frac{1}{3}}$ for other yields, although owing to the limited amount of data available only fair reliability can be assumed. The predictions also become less reliable at the shallower depths of burst. A tabulation of peak overpressure required to cause ship damage is given in Table I for use with burst heights greater than those shown in Figures 1 and 2. For these burst heights distances to which these overpressures extend are obtained from the usual height of burst/overpressure curves.

TABLE I - Surface Ship Peak Air Overpressure Damage Criteria

	Peak Air Overpressure (p.s.i.)		
	Severe	Moderate	Light
Aircraft Carriers	30	20	5
Battleships	45	25	5
Cruisers (heavy)	40	20	5
Cruisers (light) (AA)	30	20	5
Destroyers	25	15	5
Pontoons (for pier construction)	60	-	-
Transports	30	20	5
LSTs & Landing Craft and Landing Vehicles	25	15	5
Submarines (surfaced)	80	60	-

The damage levels are defined as follows:-

Severe - (Probable sinking). The ship is sunk or is damaged to the extent of requiring rebuilding.

Moderate - (Immobilisation) The ship requires extensive repairs. This includes damage to certain shock-sensitive components or to their foundations, such as propulsion machinery, boilers, and damage to interior equipment.



Light — This category includes damage to electronic, electrical and mechanical equipment; however, the ship may still be able to operate effectively.

* Note: this information is of American origin, whereas British estimates (L.C.A.F.O.117/55) indicate somewhat greater damage radii corresponding to less severe pressure criteria.

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5.2. The Results of Atomic Weapon Tests on Forest Fuels

During the U.S. Atomic Weapon Test "Operation Snapper", measurements were made of the minimum thermal energies required to ignite common forest fuels, (Reference (1)). Observations were also made to determine blast wave effects on the persistence of ignition and to provide field data against which laboratory source tests could be scaled.

Prepared fuel beds of conifer needles, hardwood leaves, grasses and rotton wood, were exposed in Operation Snapper to total thermal energies varying from 1 - 22 cals/sq.cm. Thickness and density of fuel particles were determined prior to the test. Fuel moisture at shot time was measured in duplicate field beds, similarly located, but outside the test area.

Post test fuel examinations showed that decayed materials and fine grasses ignited and continued to burn at distances from Ground Zero where the total thermal energy was approximately 3 cals/sq.cm. Following shots 3 and 4, decayed materials were still burning upon recovery at H + 2 hours. The following conclusions were made ffom the test results.

(i) Under fire-weather conditions (relative humidity less than 40%, air temperature greater than 35°F, fuel moisture less than 15%) in a forest area, atomic explosiions can be expected to ignite decayed and fine grassy fuels wherever the total thermal energy exceeds 3 cals/sq.cm.

(ii) Minimum ignition energies have been established to within approximately ± 10% for common wild-land fuels - pine needles, hardwood leaves, grasses and rotted materials.

(iii) Rotted or decayed materials and fine grasses which are ignited at low energy levels by atomic explosions, can spread fire to associated fuels which would not otherwise have been ignited.

(iv) Sparse tree crowns exposed to energies of 22 cals/sq.cm. effectively shade dead surface fuels so that few ignitions of these fuels can occur in their shadow. Dense green forest stands, with 100% crown closure, should offer few, if any, ignition points where persistent ignition and fire would occur.

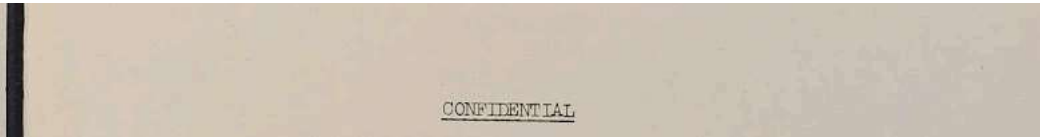
References

(1) Operation Snapper, Project S .1. The Effect of Atomic Explosions on Forest Fuels. WT-506, AFSWP. (Confidential)

TABLE I - Damage to Aircraft Windscreens at Operation Buffalo

Feet From GZ	Total Heat Dose cals/cm²	Annealed Panel	Vampire Windscreen	Hunter Windscreen
1840	64	All glass layers cracked 1st layer 6 in. crack 2nd layer 3 in. crack 3rd layer 7 in. crack 4th layer 4 cracks max. length 6 in. Both exposed glass surfaces pitted	Broken in two. Rear face missing. All remaining glass layers heavily cracked. Some separation of inter-layer along cracks. Front face heavily pitted	Front and rear glass layers cracked. Front layer 5 cracks across width. Back layer three 1 in. cracks Front Face very heavily pitted
2070	48	Back two layers cracked. Rear 0.2 in layer three cracks maximum length 4 in. Rear 0.5 in. layer 4 in. crack. Front face pitted.	Rear face missing. Otherwise no cracks. Front face heavily pitted.	Front layer cracked, (7 in. length). Front face pitted.
2560	32	Back layer cracked (2 in. length). Front face pitted.	Rear face heavily cracked. Front face heavily pitted.	No cracks. Front face pitted.
2950	24	No cracks. Front face slightly pitted.	No cracks. Front face slightly pitted.	No cracks. Front face very slightly pitted.
3570	16	No cracks Front face slightly pitted	No cracks Front face slightly pitted	Back layer cracked (two 2 in. cracks) Front face very slightly pitted.
4050	12	No cracks Front face very slightly pitted.	No cracks. Front face very slightly pitted.	Front and back layers cracked at edge. Front layer 5 in. crack Back layer 1 in. crack No pitting.

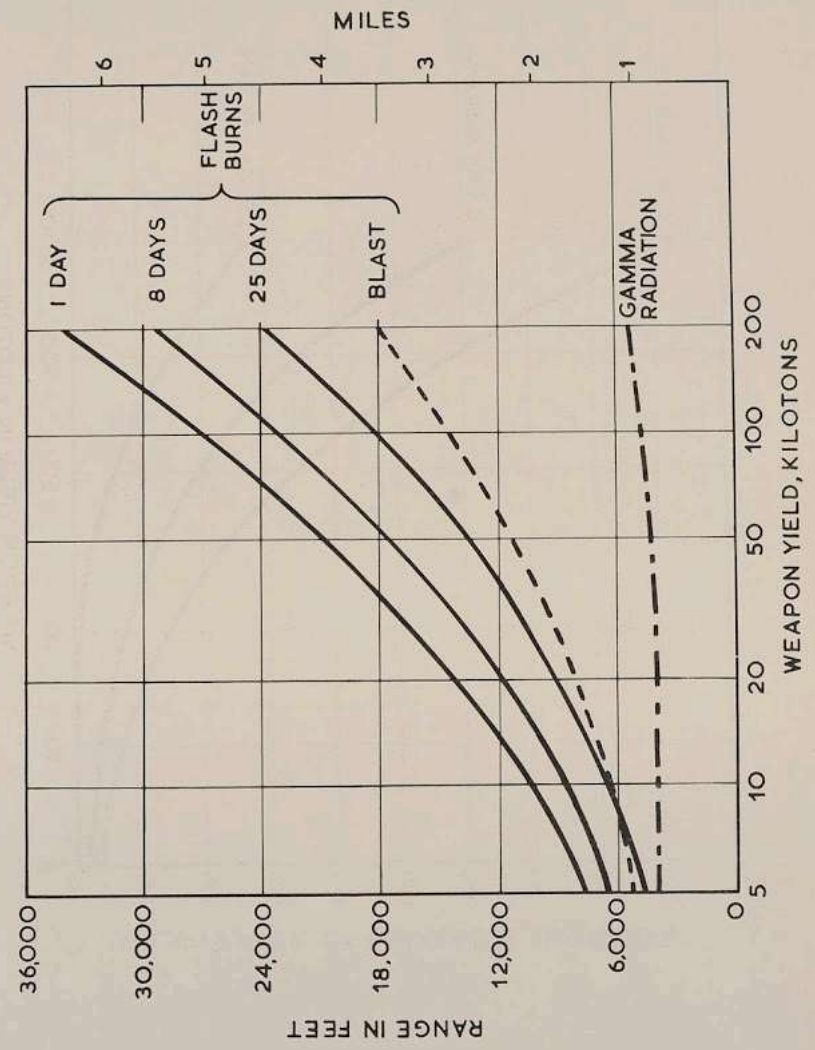

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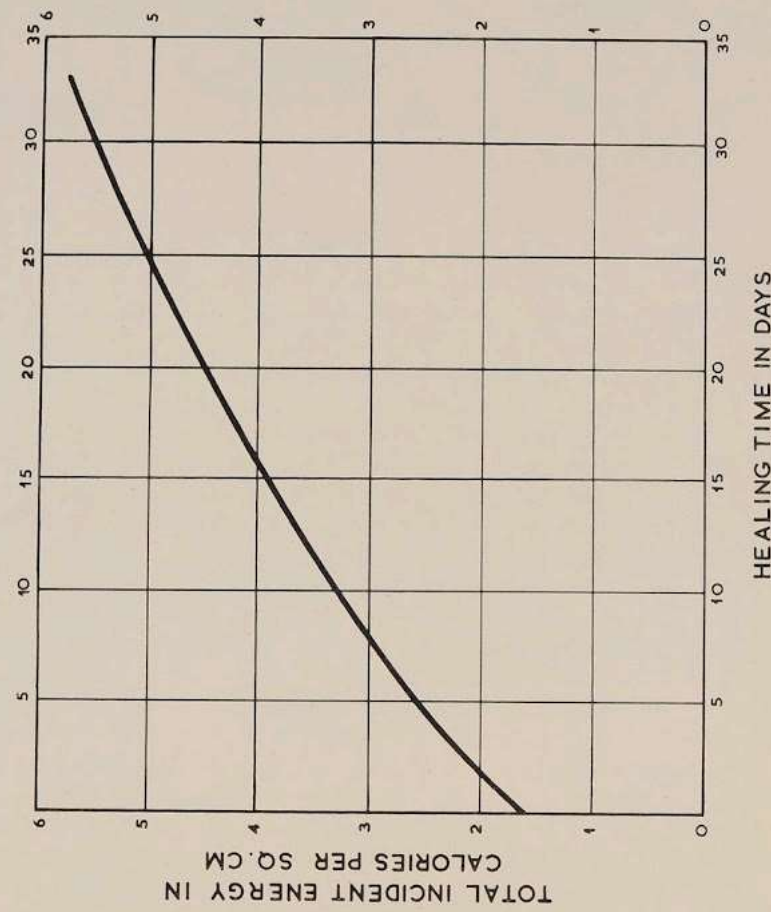
PART VI
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FIGURE 1



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PART VI
CHAPTER 7
SECTION 7.4
FIGURE 1



HEALING TIME OF UNINFECTED
WHITE LIGHT FLASH BURNS

RELATIONSHIP BETWEEN RANGE OF RISK
OF FLASH BURNS AND WEAPON YIELD

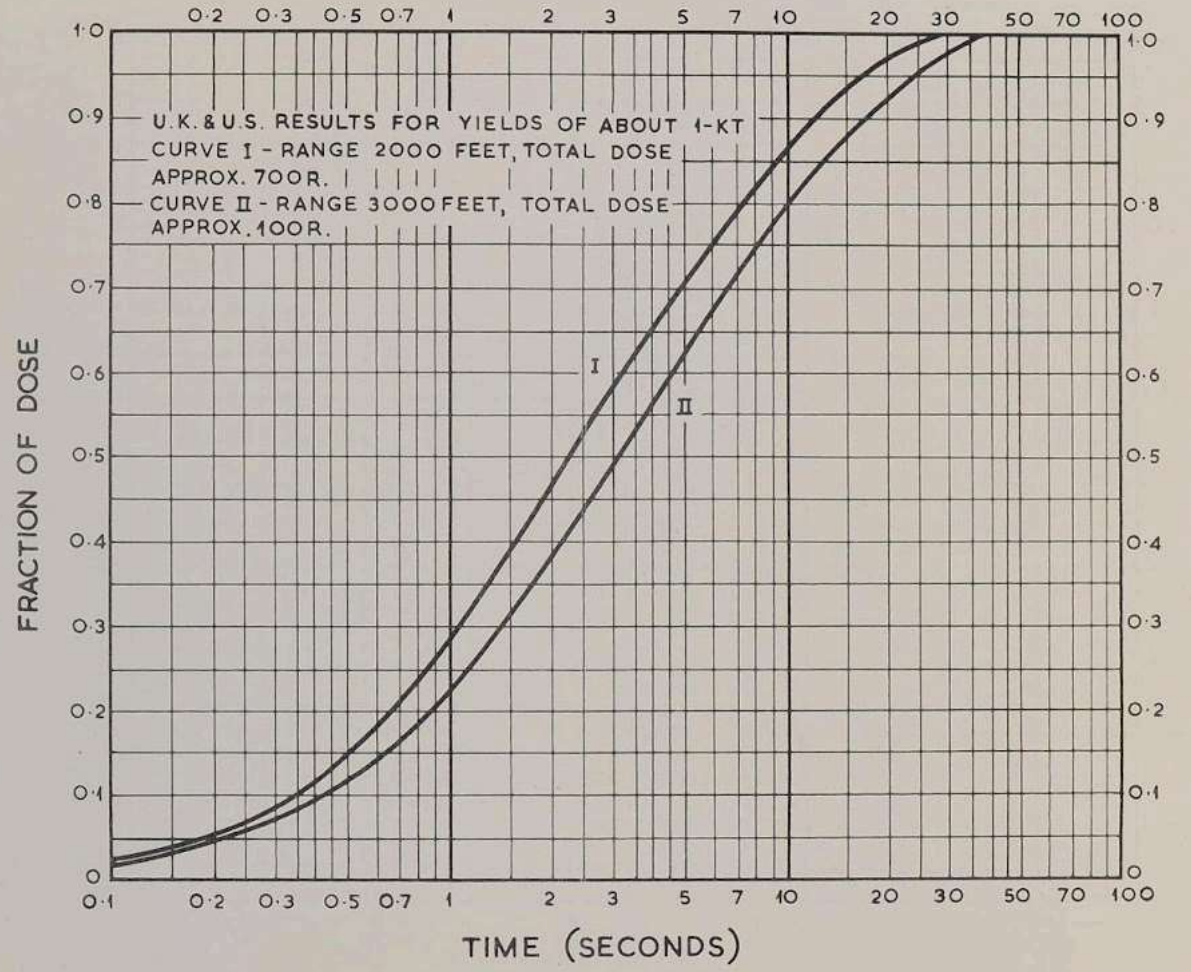
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KILOTON WEAPONS

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DELIVERY OF GAMMA DOSE IN TIME
SURFACE BURST



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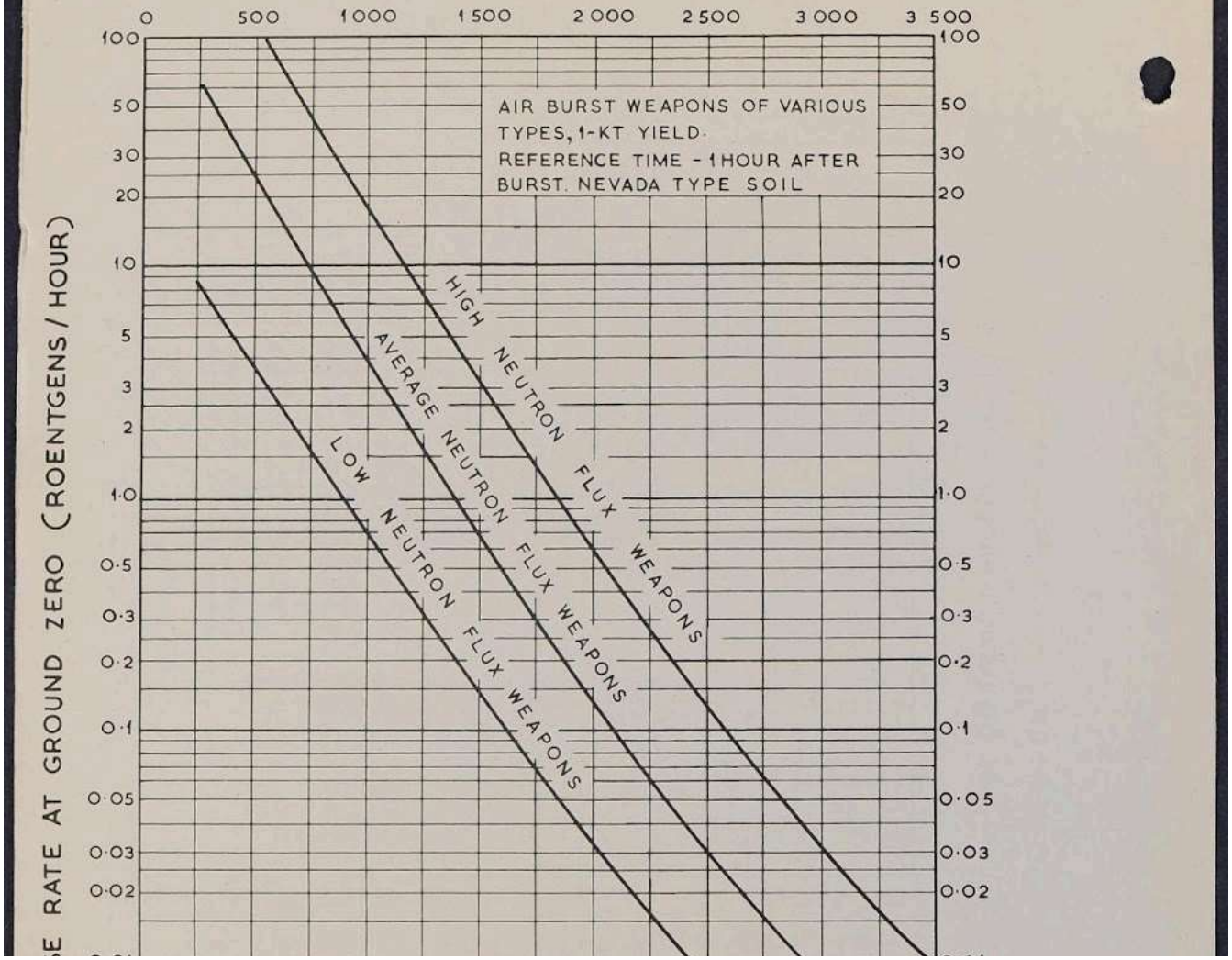
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CHAPTER 3
SECTION 3.1
FIGURE 5

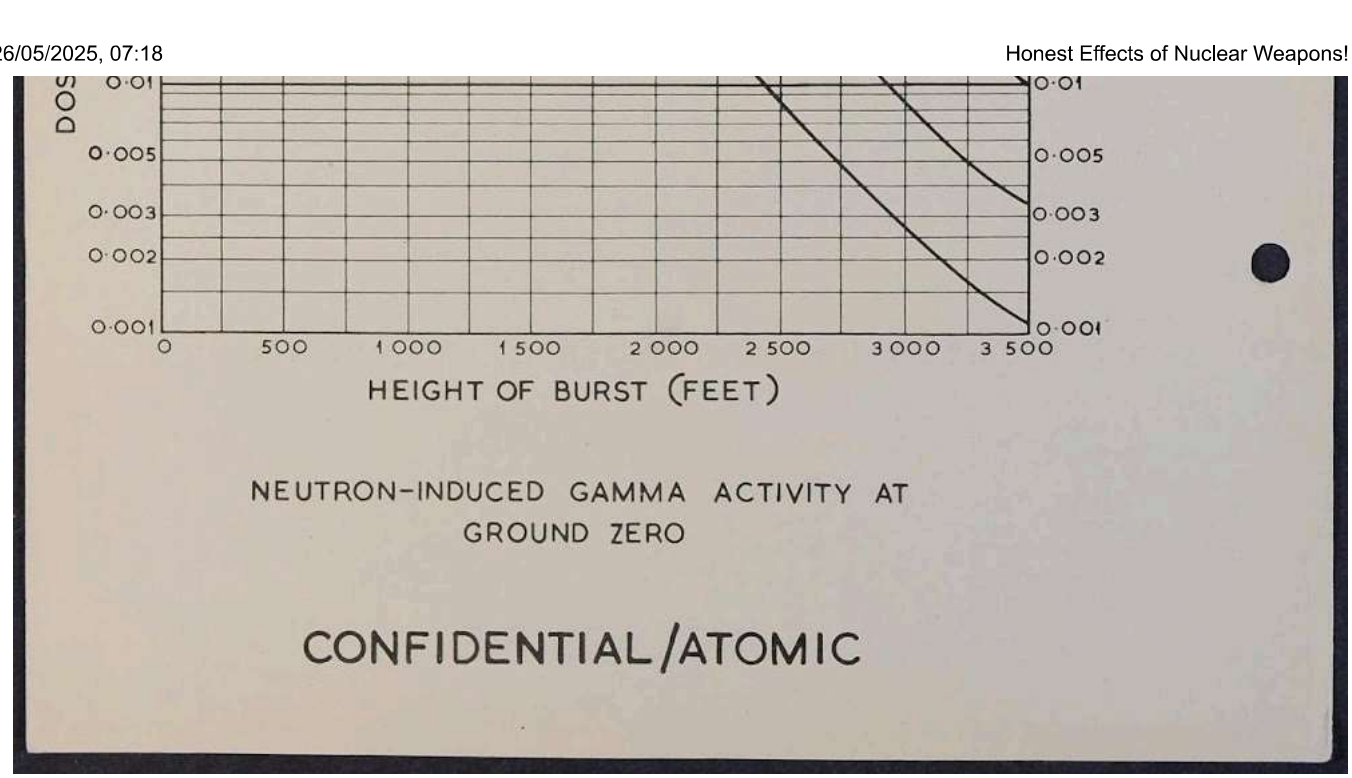
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FIGURE 4

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NEUTRON-INDUCED GAMMA ACTIVITY AT GROUND ZERO

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5.1.6 Shielding by some common structures

The shielding data for parallel beams of radiation falling on simple shields are only of limited value in dealing with the protection afforded by actual structures. A few results are available from trials of weapons in the kiloton range and these, together with the results of some theoretical studies, are given here:-

(i) Concrete cubicles

At Operation Hurricane (Reference (1)) a number of concrete cubicles were built and gamma ray attenuation measurements were made by means of film badges placed across each cubicle, all at a height of 6 ft. The concrete had a density of about 133 lb./cu.ft. and the cubicles had sides 12 ft. long and 12 ft. high. The following results were obtained:-

Wall thickness (inches)	No. of badges	Attenuation Factor Average	Attenuation Factor Range
$6\frac{3}{4}$	4	0.16	0.15 - 0.20
$9\frac{3}{4}$	3	0.096	0.082 - 0.12
12	4	0.064	0.057 - 0.079

Further observations on the penetration of concrete slabs by initial gamma radiation were made at Operations Totem and Buffalo (see also Section 5.1.5 of this chapter). It would appear from the evidence available (Reference (2)) that the gamma radiation from Buffalo Round 1 was substantially harder than that from Totem Round 1. The Buffalo half-thickness was about $4\frac{3}{4}$ inches of concrete (or 51 lb./ft.^{2}) compared with the Totem half-thickness of about $1\frac{3}{4}$-$2\frac{1}{2}$ inches of concrete (or 20-29 lb./ft.^{2}). The American data summarized in Reference (5) are more nearly in accord with the Buffalo results.

(ii) Anderson Shelters

A limited amount of information on these shelters was obtained at Operation Hurricane (Reference (1)). Owing to the irregular shape of this type of shelter, and the impossibility of maintaining a constant soil coverage, the results vary from one shelter to another. On average however, it was found that the attenuation factor in that part of the shelter which was above ground was about 0.03, while for the underground part of the shelter the factor was about 0.02. The penetration of Anderson shelters by initial gamma radiation was also studied at Operation Buffalo (Reference (2)) but the results showed considerable variation. A mean attenuation factor of about 0.05 was obtained.

(iii) Trenches

The protection afforded by trenches has been studied by A.O.R.G. (Reference (3)), and information obtained from tests with slit trenches and circular holes at Operation Totem, has been reported (Reference (4)).

The protective value of a trench depends on several factors, such as depth, orientation, nature of soil, amount and type of cover, angle of elevation to the burst, and the position at which the dose is measured. Some average figures for trenches 6' x 2' x 4'6" deep have been taken from the

stated heights on the centre line of each hole.

TABLE 1

Gamma Attenuation Factors for Circular Pits at Operation Totem

Depth below surface (inches)	Distance from Ground Zero and Exterior Dose							
	1710 ft. (11000r)		2720 ft. (950r)		3760 ft. (110r)		6010 ft. (4.7r)	
	Open	Closed	Open	Closed	Open	Closed	Open	Closed
0	1.0	96	1.0	63	1.0	78	1.0	36
6	2.1	100	3.7	56	2.8	55	3.4	39
12	3.8	105	7.3	53	5.2	52	6.5	47
24	12	120	16	79	13	100	15	94
36	21	150	29	155	24	165	24	105
48	38	190	45	250	39	240	34	120
60	58	310	63	320	52	330	48	140
72	92	610	86	380	61	380	64	170

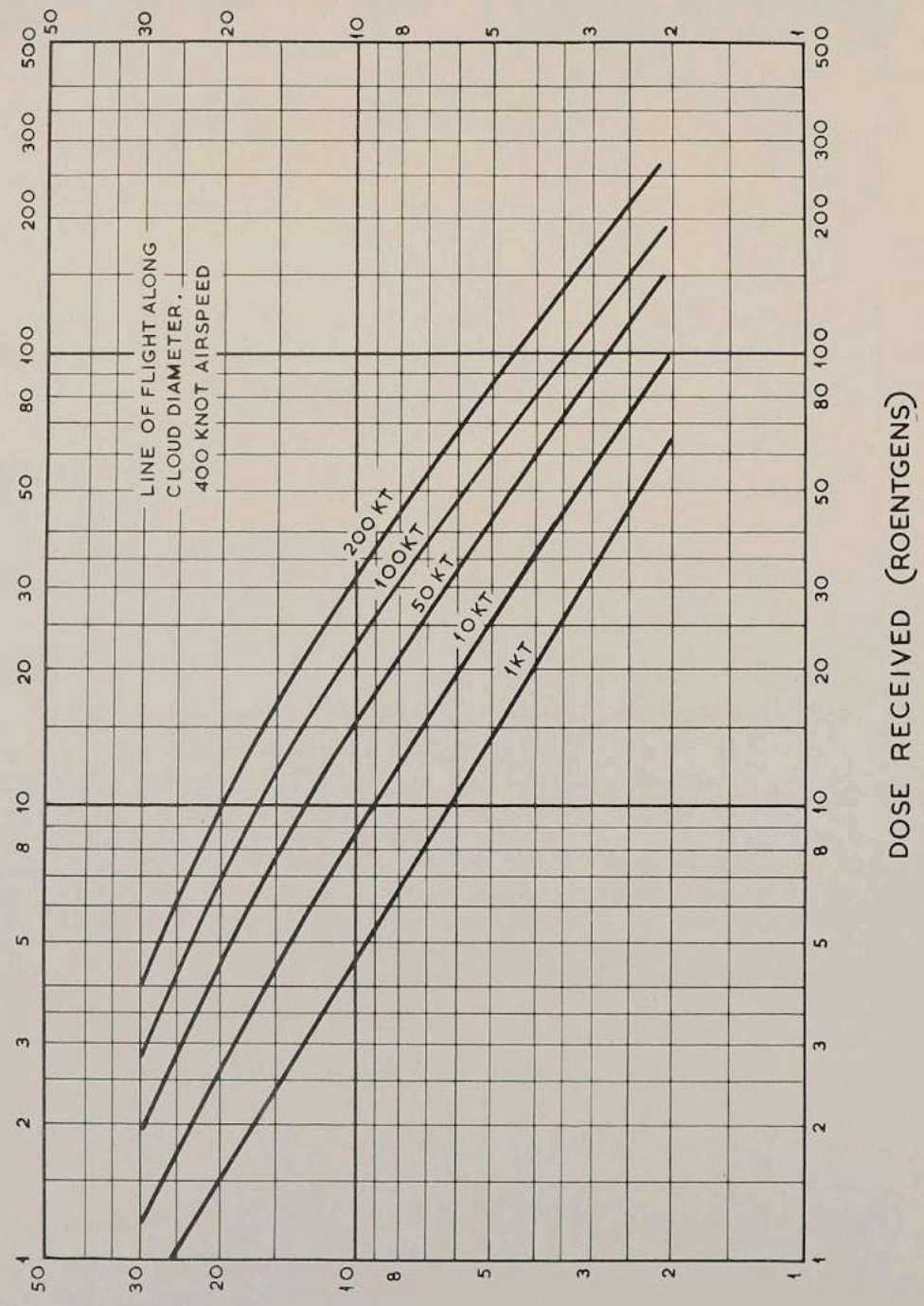
Information on initial gamma attenuation factors, from an American source (Reference (5)), is listed in Table 2.

A.W.R.E. Report (Reference (3)) and are shown in Figure 1. Some values for gamma attenuation factors for circular pits at Operation Totem (Reference (4)) are given in Table 1. These pits were 6 ft. deep and 4 ft. in diameter, and those designated 'closed' were completely covered by an 18 inch thick layer of sandbags. The dose measurements were made with film badges mounted at the

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Honest Effects of Nuclear Weapons!



RADIATION DOSE RECEIVED FROM FLYING THROUGH AN ATOMIC CLOUD

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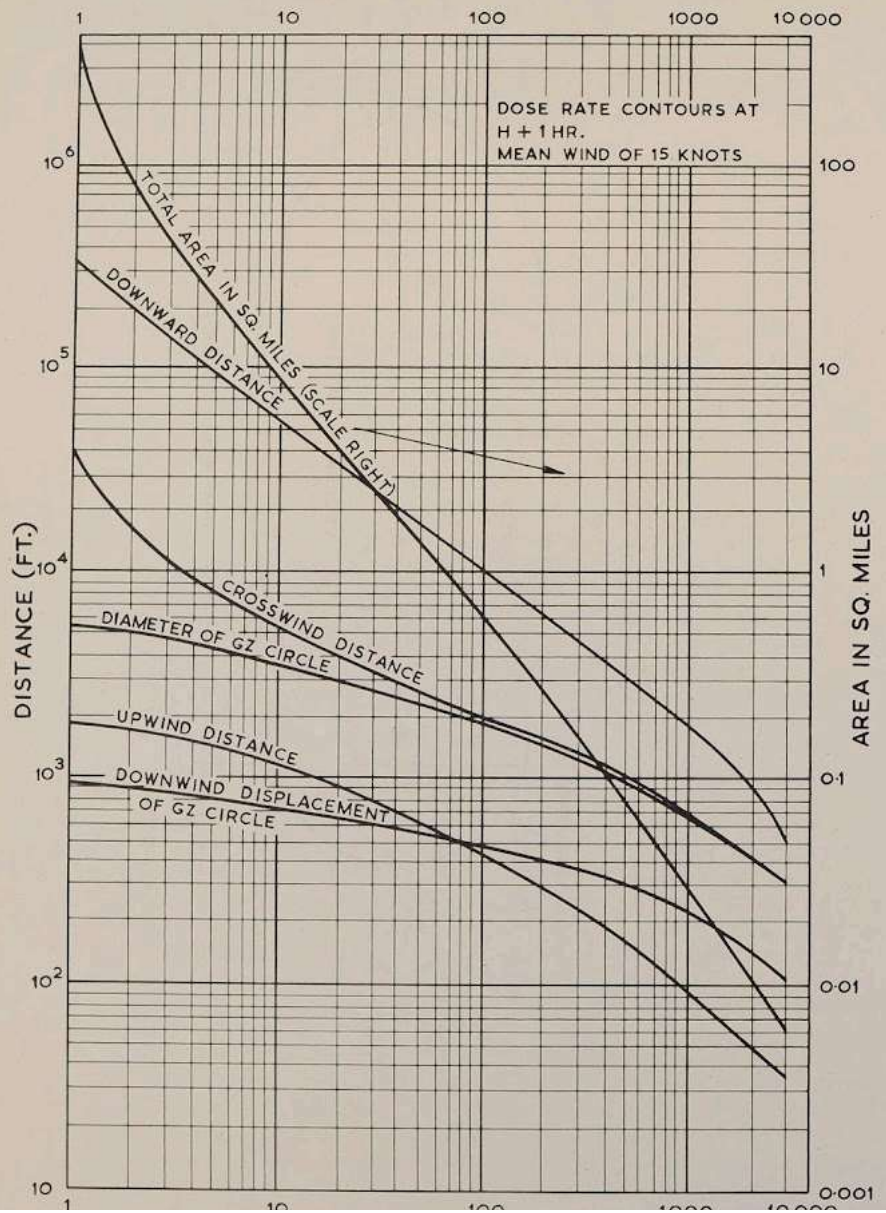
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https://glasstone.blogspot.com

PART VII
CHAPTER 7
SECTION 7.5
FIGURE 2

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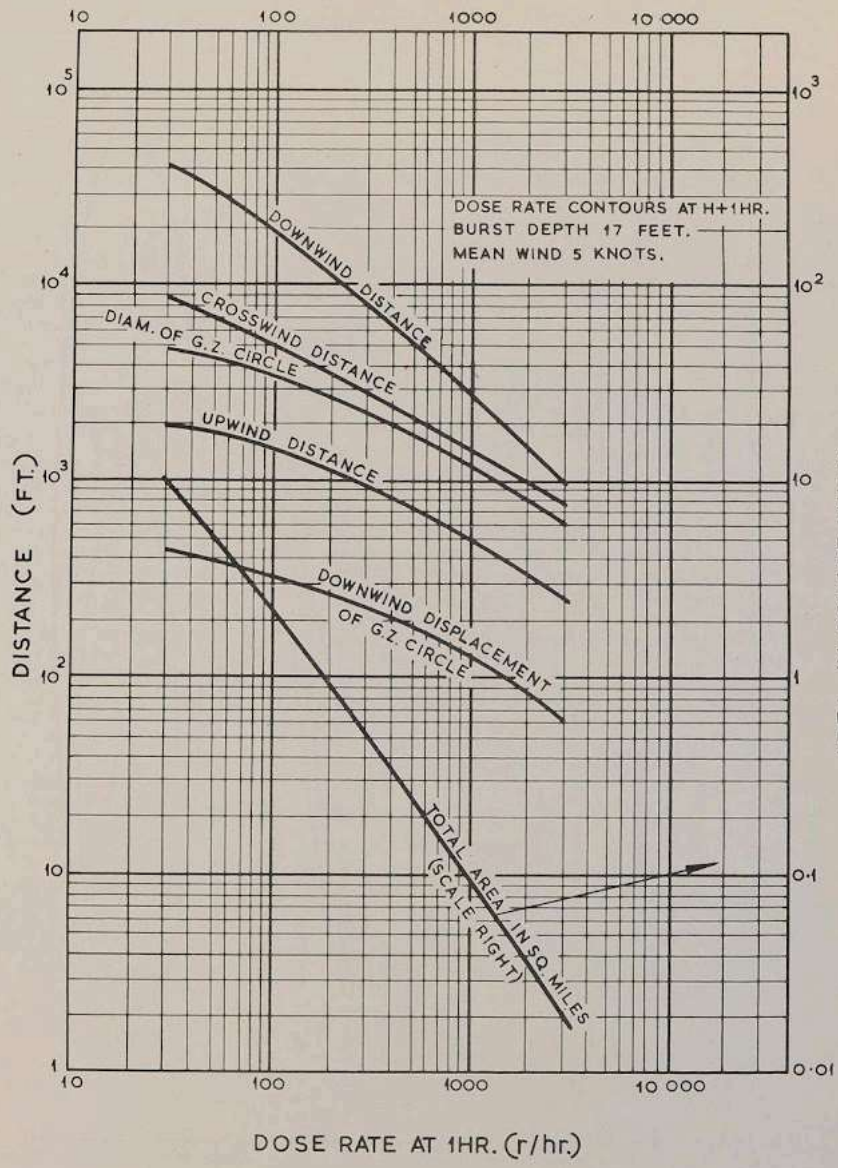
D.N.W.
FEB. 1958

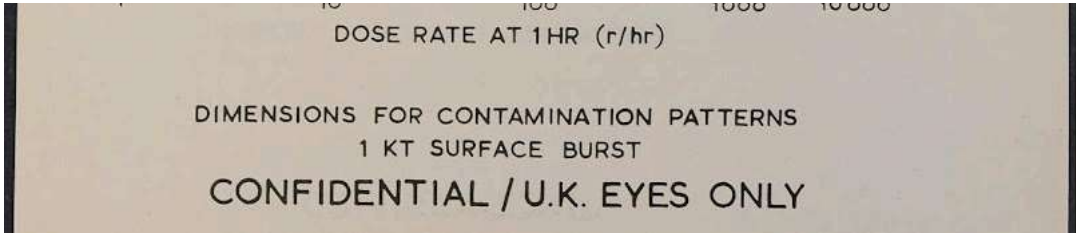


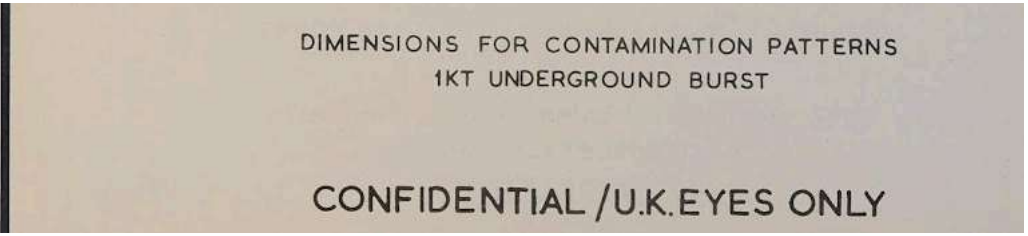
D.N.W.
FEB. 1958

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PART VII
CHAPTER 7
SECTION 7.5
FIGURE 3




DOSE RATE AT 1 HR (r/hr)
DIMENSIONS FOR CONTAMINATION PATTERNS
1 KT SURFACE BURST
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DIMENSIONS FOR CONTAMINATION PATTERNS
1KT UNDERGROUND BURST
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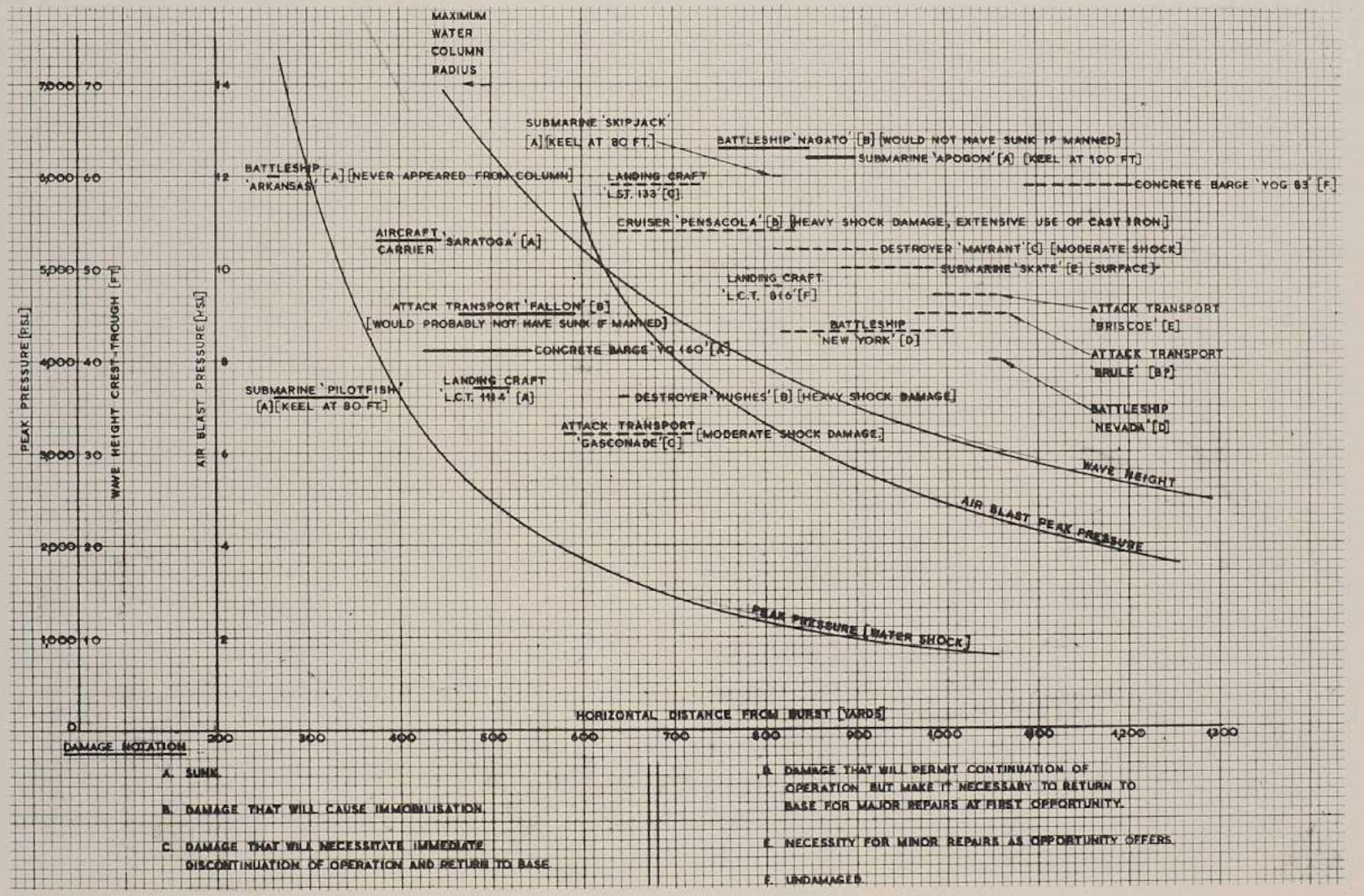
C. Trials Reports

Ref. No.	U.K. Reference	U.S. Reference	Author	Title	Security Classn.	Remarks
31	AWRE Report T 47/57		A.J. Wood	The Effect of Earth Covers on the Resistance of Trench Shelter Roofs	C	
32	AWRE Report T 37/57		J.K. Wright	Operation Buffalos. Measurement of Ground Shock and Crater	Secret	
33	AWRE Report T 42/58		A.G. Hunt	Operation Antler. Measurement of Ground Shock	C	
34		WT - 727		Operation Upshot-Knothole. Air Blast Effects on Underground Structures	C	
35		WT - 1127		Operation Teapot. Air Blast Effects on Underground Structures	C	
36		WT - 1128		Operation Teapot. Evaluation of Earth Cover as Protection to Aboveground Structures	C	
37		ITR-1404		Operation Plumbbob. Ground Acceleration, Stress, and Strain at High Incident Overpressures	C	
38		ITR 1405		Operation Plumbbob. Ground Motion Studies at High Incident Overpressure	C	
39	DGAW 565/60	WT - 1420		Operation Plumbbob. Blast Loading and Response of Concrete-Arch Protective Structures	C	
40		WT-1424		Operation Plumbbob. Isolation of Structures from Ground Shock.		
41		WT-1425		Operation Plumbbob. Full-scale Field Tests of Dome and Arch Structures		
42		ITR-1447		Operation Plumbbob. The Internal Environment of Underground Structures subjected to Nuclear Blast. I - The occurrence of dust	O.U.O.	
43	DGAW 67/59	ITR-1448		Operation Plumbbob. Field Test of Reinforced Concrete Dome Shelters and Prototype Door	O.U.O.	
44		ITR-1449		Operation Plumbbob. Response of Dual-purpose Reinforced Concrete Mass Shelter	O.U.O.	
45		ITR-1459		Operation Plumbbob. Evaluation of Industrial Doors Subjected to Blast Loading	O.U.O.	

46		ITR-1460		Operation Plumbbob. Test and Evaluation of Anti-Blast Valves for Protecting Ventilation Systems	C.U.C.	
47		ITR-1475		Operation Plumbbob. Blast Effects on Air-Cleaning System	C.U.C.	
48	DGAW 296/60	ITR-1613		Operation Hardtack. Ground Motion Produced by Nuclear Detonations	Secret Atomic	
49		ITR-1631		Operation Hardtack. Damage to Existing EPG Structures	Secret	
50	Home Office C. 12398	ITR-1703		Operation Hardtack. Surface and Sub-surface Strong Motion Measurements	U	
51		ITR-1714		Operation Hardtack. Evaluation of Blast and Shock Effects on Tunnel Support Structures.	U	

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DATA FROM BIKINI
SHOT BAKER
SECRET

PART V
CHAPTER 3
SECTION 3.7
FIGURE 1

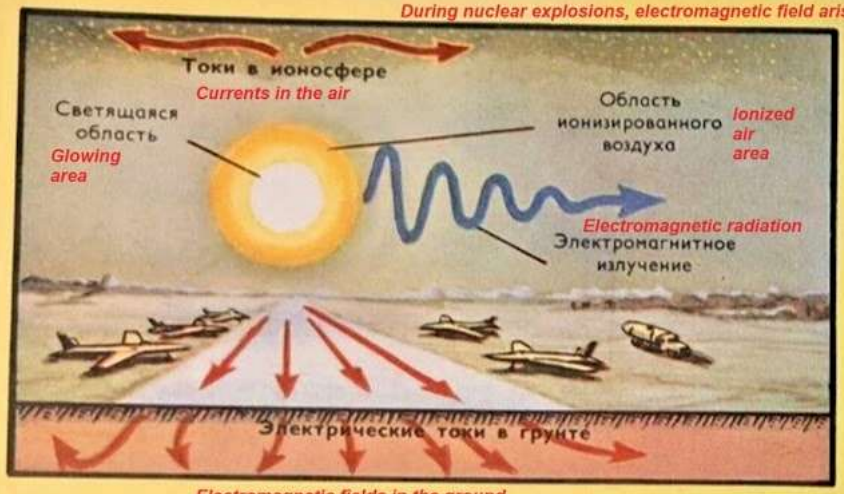
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ЭЛЕКТРОМАГНИТНЫЙ ИМПУЛЬС

Electromagnetic pulse

ПРИ ЯДЕРНЫХ ВЗРЫВАХ ВОЗНИКАЮТ ЭЛЕКТРОМАГНИТНЫЕ ПОЛЯ, КОТОРЫЕ СОЗДАЮТ ИМПУЛЬСНЫЕ ЭЛЕКТРИЧЕСКИЕ ТОКИ И НАПРЯЖЕНИЯ В ВОЗДУШНЫХ И НАЗЕМНЫХ ПРОВОДНЫХ И КАБЕЛЬНЫХ ЛИНИЯХ, В АНТЕННАХ РАДИОСТАНЦИЙ, А ТАКЖЕ РАДИОИЗЛУЧЕНИЕ, РАСПРОСТРАНЯЮЩЕЕСЯ НА БОЛЬШИЕ РАССТОЯНИЯ.

During nuclear explosions, electromagnetic field arise, which create pulsed electric currents and voltages on ground-based wire an cable lines, radio antennas, and radiated radio energy spreading far



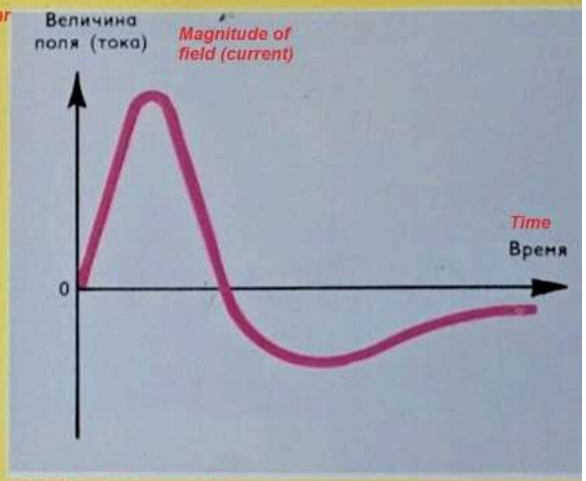
Electromagnetic fields in the ground

Электромагнитное поле и токи в воздухе и грунте возникают в результате образования в зоне взрыва светящейся области и большой области ионизированного воздуха, созданной проникающей радиацией.

Electromagnetic fields and currents in the air and the ground, arise in the ionized air created by the penetrating radiation from the explosion.

Наведенные токи и напряжения представляют собой кратковременный импульс, по своим характеристикам близкий к импульсу, вызванному молниевым разрядом. Его длительность составляет несколько миллисекунд.

Induced voltages and currents are in the form of a pulse, similar to lightning, with a duration of several milliseconds.



Within several km of air and ground explosions, overhead power/communications lines experience 10,000 - 100,000 volt induced pulses

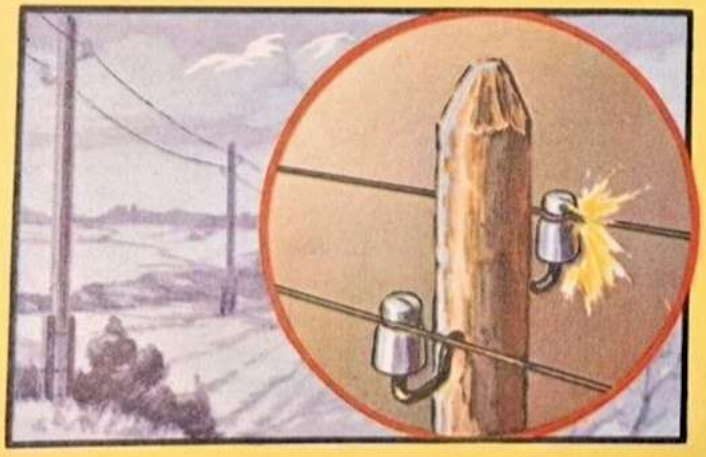
ПРИ НАЗЕМНЫХ И ВОЗДУШНЫХ ВЗРЫВАХ В РАДИУСЕ НЕСКОЛЬКИХ КИЛОМЕТРОВ ОТ ЦЕНТРА (ЭПИЦЕНТРА) ВЗРЫВА ПЕРЕНАПРЯЖЕНИЯ МЕЖДУ ПРОВОДАМИ ВОЗДУШНЫХ ЛИНИЙ СВЯЗИ ИЛИ ЭЛЕКТРОСНАБЖЕНИЯ И ЗЕМЛЕЙ ДОСТИГАЮТ ДЕСЯТКОВ И СОТЕН ТЫСЯЧ ВОЛЬТ, А МЕЖДУ ЖИЛАМИ ПОДЗЕМНЫХ КАБЕЛЬНЫХ ЛИНИЙ И ОБОЛОЧКОЙ (ЗЕМЛЕЙ) — НЕСКОЛЬКИХ ДЕСЯТКОВ ТЫСЯЧ ВОЛЬТ. НАВЕДЕННЫЕ ИМПУЛЬСЫ МОГУТ РАСПРОСТРАНЯТЬСЯ ПО ЛИНИЯМ НА БОЛЬШИЕ РАССТОЯНИЯ ОТ МЕСТА ЯДЕРНОГО ВЗРЫВА.

Underground cables receive several tens of thousands of volts induced pulse

Induced pulse propagate out to long distances along the transmission l

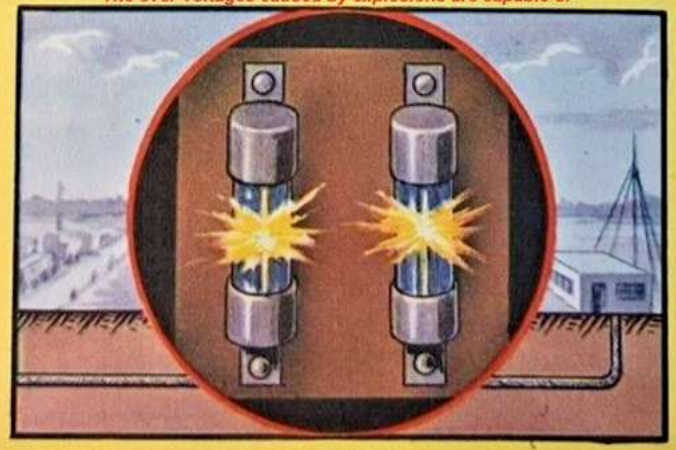
ВОЗНИКШИЕ ПРИ ВЗРЫВАХ ПЕРЕНАПРЯЖЕНИЯ СПОСОБНЫ:

The over-voltages caused by explosions are capable of



разрушать изоляцию электро- и радиотехнических устройств;

Destroying the insulation of electrical and radio equipment



вызывать перегорание элементов электро- и радиоаппаратуры или массовое срабатывание средств защиты;

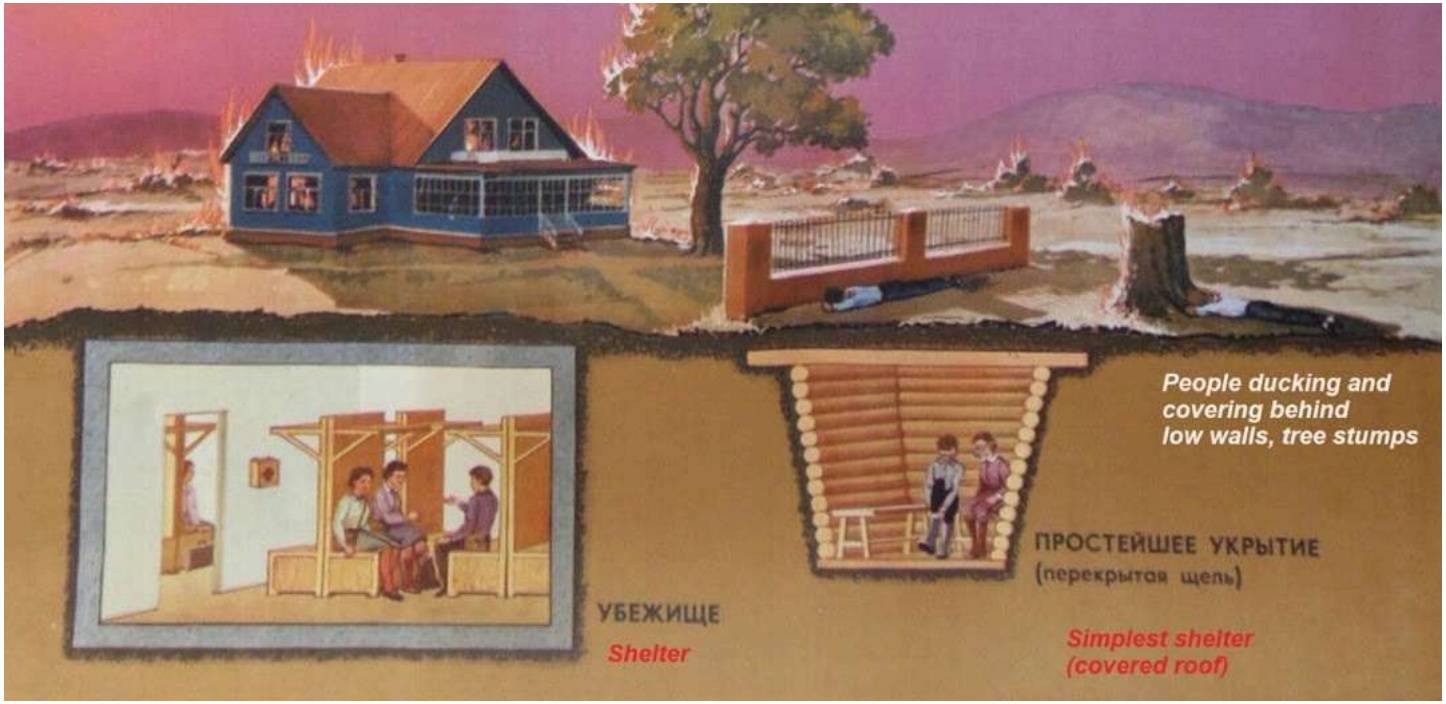
Burning out electrical and radio equipment components/safety devices.



поражать обслуживающий персонал.

Injuring technical staff.


ПОРАЖАЮЩИЕ ФАКТОРЫ ЯДЕРНОГО ВЗРЫВА
Damaging factors of a nuclear explosion
УДАРНАЯ ВОЛНА,
СРЕДСТВА ЗАЩИТЫ ОТ НЕЕ
BLAST WAVE
Means to protect against it
ПЕРЕКРЫТАЯ ЩЕЛЬ
ОТКРЫТАЯ ЩЕЛЬ
УБЕЖИЩЕ
0 – 1/10 R
1/2 R
2/3 R
R (радиус) безопасного удаления от ядерного взрыва
Survival from GZ to R/10 radius
Underground concrete shelter
Survival at R/2 radius
Covered, shored trench
Survival at R radius
Open trench
СВЕТОВОЕ ИЗЛУЧЕНИЕ,
СРЕДСТВА ЗАЩИТЫ ОТ НЕГО
THERMAL RADIATION
Means of protection against it
(shadows by any intervening object)


People ducking and
covering behind
low walls, tree stumps
ПРОСТЕЙШЕЕ УКРЫТИЕ
(перекрытая щель)
Simplest shelter
(covered roof)
УБЕЖИЩЕ
Shelter

ПОРАЖАЮЩИЕ ФАКТОРЫ ЯДЕРНОГО ВЗРЫВА

Damaging effects of a nuclear explosion

Penetrating radiation - neutrons and gamma rays, are emitted during a nuclear explosion

Проникающая радиация — это поток гамма-лучей и нейтронов, испускаемых в момент ядерного взрыва.

Поражающее действие проникающей радиации на людей вызывается облучением, которое оказывает вредное биологическое действие на клетки организма, в результате чего человек заболевает так называемой лучевой болезнью.

В зависимости от дозы облучения (которая измеряется в рентгенах) различают три степени лучевой болезни: первую (легкую), вторую (среднюю) и третью (тяжелую).

При лучевой болезни первой степени скрытый период продолжается две-три недели, после чего появляется недомогание, общая слабость, тошнота, головокружение, повышается температура.

При лучевой болезни второй степени скрытый период длится около недели, признаки заболевания — как и при лучевой болезни первой степени, но в более ярко выраженной форме. При активном лечении выздоровление наступает через 1,5—2 месяца.

Скрытый период при лучевой болезни третьей степени сокращается до нескольких часов. Болезнь протекает более интенсивно. При активном лечении выздоровление наступает через несколько месяцев.

The first symptom of a mild (1st degree) radiation dose is brief nausea and sickness, followed by a latent period of no symptoms lasting 2-3 weeks, then another period of malaise/discomfort including symptoms of fever [due to low blood counts of radiation-susceptible short-lived white blood cells of the immune system, blood clotting platelets, etc.]. For moderately severe (2nd degree) doses, the latent period of no effects is reduced to just 1 week, and recovery with treatment takes 1.5-2 months. For severe (3rd degree) radiation doses, the latent period is reduced to a few hours.

ЕСЛИ ДОЗЫ ОБЛУЧЕНИЯ ПРЕВЫШАЮТ ДОПУСТИМЫЕ, ЧЕЛОВЕК ЗАБОЛЕВАЕТ ЛУЧЕВОЙ БОЛЕЗНЬЮ!

If the radiation dose exceeds permissible limits, the person becomes ill with radiation sickness

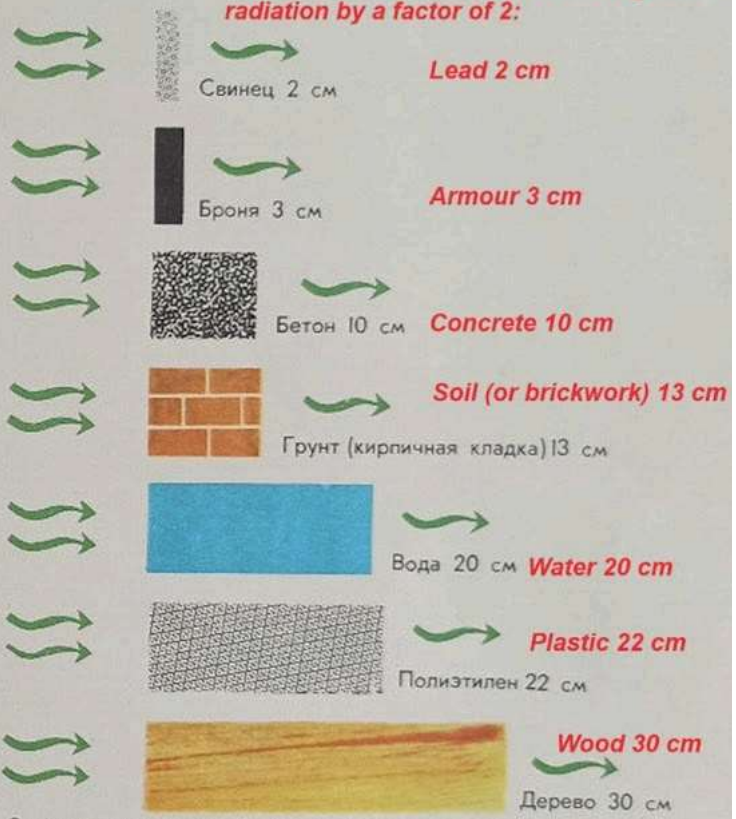
СТЕПЕНИ ЛУЧЕВОЙ БОЛЕЗНИ

100-200 р — лучевая болезнь I степени

Ослабление интенсивности гамма-излучения характеризуется слоем половинного ослабления. Это слой вещества, при прохождении которого интенсивность гамма-лучей уменьшается в два раза.



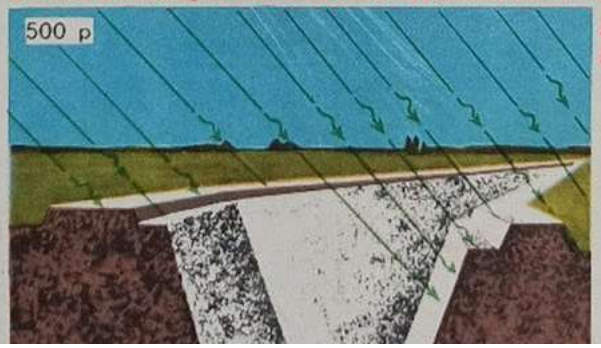
Thicknesses of material to reduce gamma radiation by a factor of 2:



Слой половинного ослабления некоторых материалов

За преградами доза радиации значительно меньше, чем на открытой местности. Убежища практически полностью защищают от радиации

Behind barriers, radiation doses are much less. Shelters provide almost complete protection against radiation.



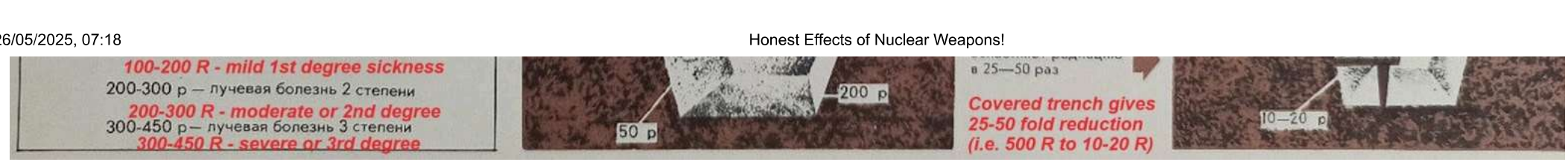
500 R reduced to 50-200R in open trench

Открытые щели ослабляют радиацию в 3—10 раз

Open slit trenches give a 3-10 fold shielding of gamma radiation

Перекрытые щели ослабляют радиацию




100-200 R - mild 1st degree sickness
200-300 р — лучевая болезнь 2 степени
200-300 R - moderate or 2nd degree
300-450 р — лучевая болезнь 3 степени
300-450 R - severe or 3rd degree
50 р
200 р
в 25—50 раз
Covered trench gives
25-50 fold reduction
(i.e. 500 R to 10-20 R)
10—20 р

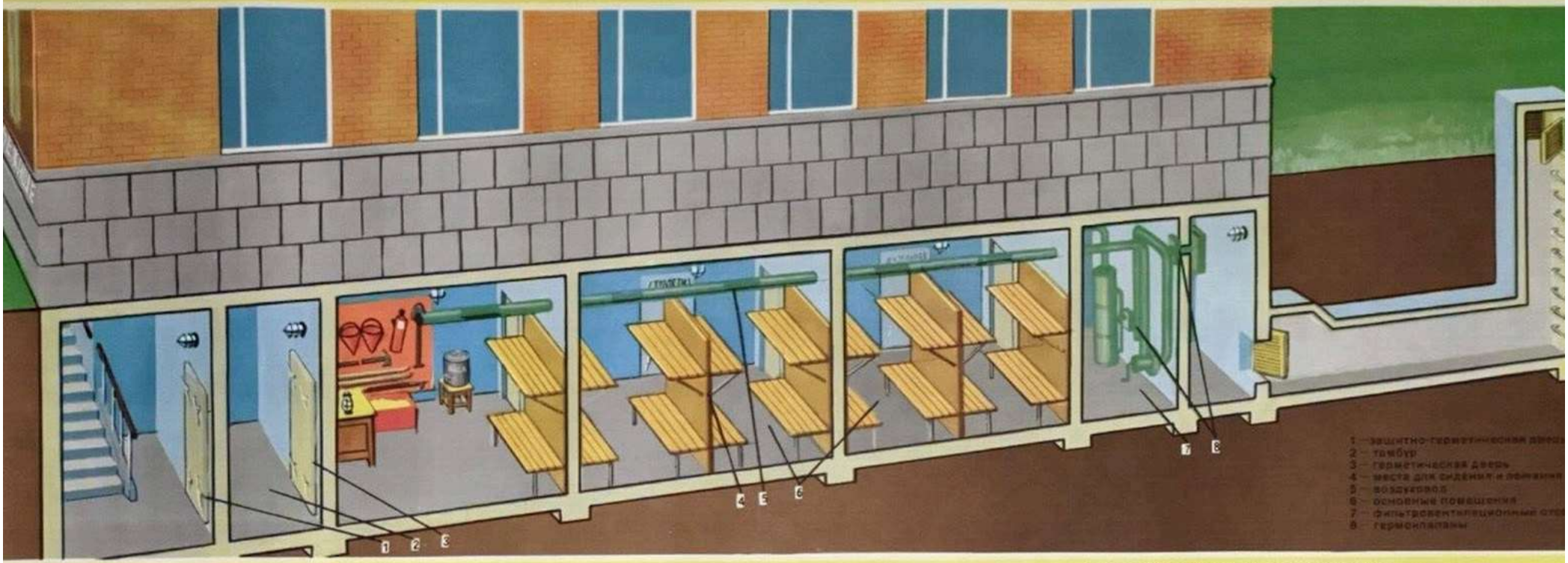

ЗАЩИТНЫЕ СООРУЖЕНИЯ ГО
1986-7 Russian double blast door concr
basement shelter; 50,000 copies of post
Противорадиационное укрытие — сооружение, обеспечивающее защиту людей от ионизирующих излучений при радиоактивном заражении местности и светового потока, частично от ударной волны и проникающей радиации [в том числе и от нейтронного потока], а также от непосредственного попадания на кожу и одежду людей радиоактивных, отравляющих веществ и бактериальных средств
Concrete slabs covered shelter
ПРОТИВОРАДИАЦИОННОЕ УКРЫТИЕ ИЗ ЛЕСОМАТЕРИАЛА С ПЕРЕКРЫТИЕМ ИЗ ЖЕЛЕЗОБЕТОННЫХ ПЛИТ
ПОГРЕБ, ПРИСПОСОБЛЕННЫЙ ПОД УКРЫТИЕ
Farm cellar shelter
Оконные ставни
Насыпь грунта на перекрытии
Дополнительная кирпичная кладка
Оконные проем заложенные кирпичом
Грунтовая обсыпка
Basemen shelter
Приточный короб
Стойка усиления
ПОДВАЛЬНОЕ ПОМЕЩЕНИЕ, ПРИСПОСОБЛЕННОЕ ПОД ПРУ
УСТРОЙСТВО И ВНУТРЕННЕЕ ОБОРУДОВАНИЕ УБЕЖИЩА
Убежище — сооружение герметического типа, предназначенное для защиты укрывающихся в них людей от всех поражающих факторов ядерного взрыва, отравляющих веществ, бактериальных средств, а также от высоких температур и вредных газов, образующихся при пожарах
(1) & (3): DOUBLE BLAST DOORS FOR HIGH LEVEL OF BLAST PROTECTION
DOUBLE BLAST DOORS CONCRETE BASEMENT SHELTER

ОБЩЕЕ УСТРОЙСТВО УБЕЖИЩ

1980 Russian nucl shelters poster

УБЕЖИЩА ЗАЩИЩАЮТ ЛЮДЕЙ ОТ ВОЗДЕЙСТВИЯ ЯДЕРНОГО ОРУЖИЯ, ОТРАВЛЯЮЩИХ ВЕЩЕСТВ И БАКТЕРИАЛЬНЫХ СРЕДСТВ

ВНУТРЕННЕЕ ОБОРУДОВАНИЕ ВСТРОЕННОГО УБЕЖИЩА



DOUBLE BLAST DOORS FOR CLOSE-IN HIGH OVERPRESSURES

По сигналу «Воздушная тревога» в убежище (укрытие) сначала размещаются дети и престарелые люди;

индивидуальные средства защиты необходимо держать в постоянной готовности;

общий выход из убежища осуществляется по сигналу «Отбой воздушной тревоги» (без разрешения выходить из убежища запрещается).

Основные помещения строятся из расчета 1,5 м^3

объема и 0,5 м^2 площади на одного укрываемого человека.

Высота помещений должна составлять не менее 2,2 м от пола до низа выступающих конструкций перекрытия.

Места для сидения устраиваются размером 0,45х0,45 м на одного человека и для лежания на верхнем ярусе 0,55х1,8 м. Количество мест для лежания должно быть не менее 20% от общей вместимости убежища.

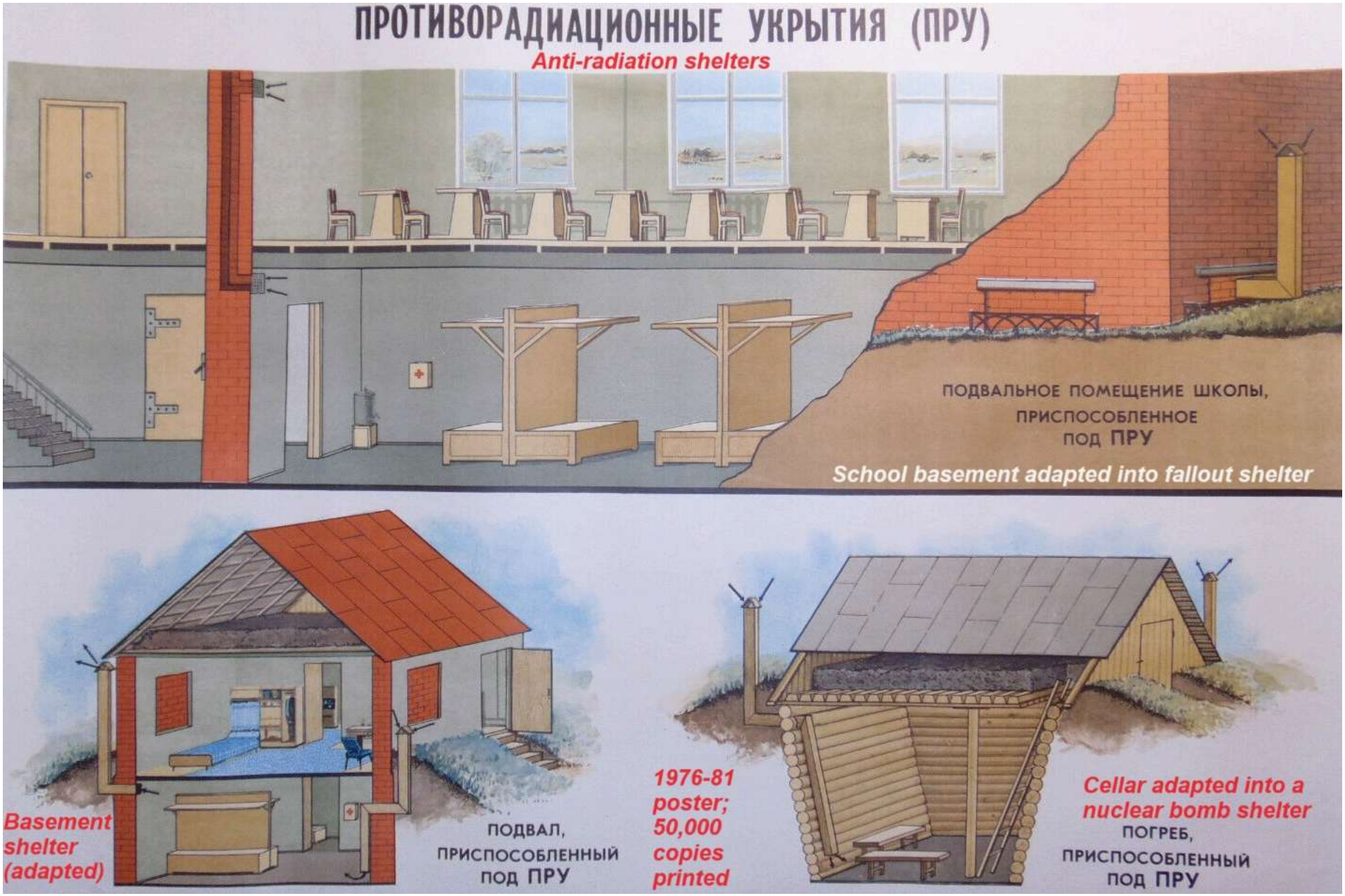
В убежище в противоположных его концах устраивается не менее двух выходов.

Очистка подаваемого воздуха может осуществляться в двух режимах: чистой вентиляции (очистка воздуха от пыли), фильтровентиляции (очистка воздуха от пыли и ОВ).

РАЗМЕЩЕНИЕ ЛЮДЕЙ В УБЕЖИЩЕ




Таблицы по гражданской обороне. 5класс
УБЕЖИЩЕ И ПРОСТЕЙШИЕ УКРЫТИЯ
Shelters and the simplest protective structures
1976-1981 Russian shelter poster,
50,000 copies printed
ТАМБУР
ВОЗДУХОВОД
ОСНОВНЫЕ ПОМЕЩЕНИЯ
ОГОЛОВОК
ЗАПАСНОЙ ВЫХОД
ФИЛЬТРОВЕНТИЛЯЦИОННЫЙ ОТСЕК
Double doors
Hemetic door
ГЕРМЕТИЧЕСКАЯ ДВЕРЬ
ЗАЩИТНО-ГЕРМЕТИЧЕСКАЯ ДВЕРЬ
Protective hermetic blast door
НАРЫ
Bunks
УСТРОЙСТВО И ВНУТРЕННЕЕ ОБОРУДОВАНИЕ ВСТРОЕННОГО УБЕЖИ
The device and built-in equipment of the built-in (basement) shelter
NOTE THE DOUBLE BLAST DOORS FOR CLOSE-IN BLAST PROTECTION
Bunks at top (take turns to sleep)
Blast door
РАЗМЕЩЕНИЕ ЛЮДЕЙ В УБЕЖИЩЕ
People in shelter
ОТКРЫТАЯ ЩЕЛЬ
Simplest shelters (open trench)
ПРОСТЕЙШИЕ УКРЫТИЯ
(covered trench)


ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ (ПРУ)
Anti-radiation shelters
ПОДВАЛЬНОЕ ПОМЕЩЕНИЕ ШКОЛЫ, ПРИСПОСОБЛЕННОЕ ПОД ПРУ
School basement adapted into fallout shelter
Basement shelter (adapted)
ПОДВАЛ, ПРИСПОСОБЛЕННЫЙ ПОД ПРУ
1976-81 poster; 50,000 copies printed
Cellar adapted into a nuclear bomb shelter
ПОГРЕБ, ПРИСПОСОБЛЕННЫЙ ПОД ПРУ

ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ

(ПРОДОЛЖЕНИЕ)

Население при угрозе нападения противника может своими силами строить из подручных материалов различного рода укрытия.



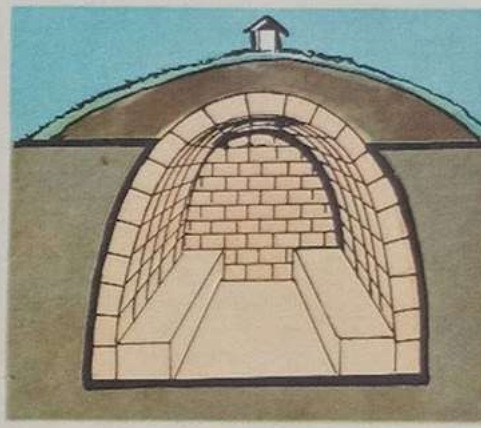
Щель



Землянка

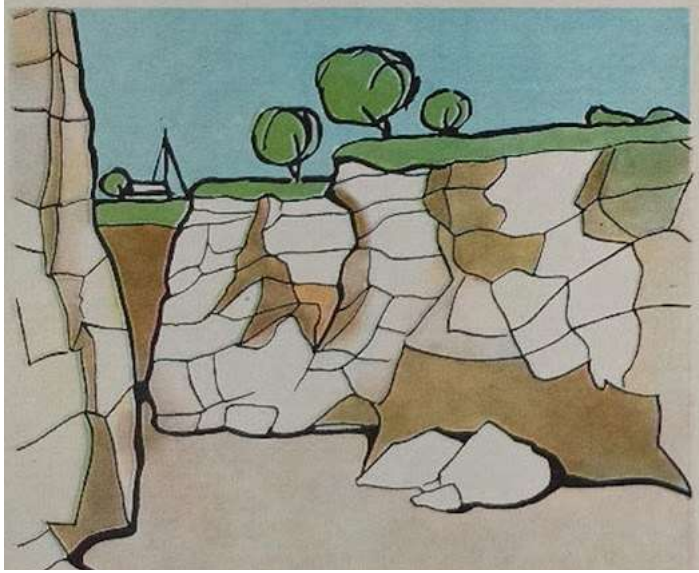


Укрытие из арочных фашин

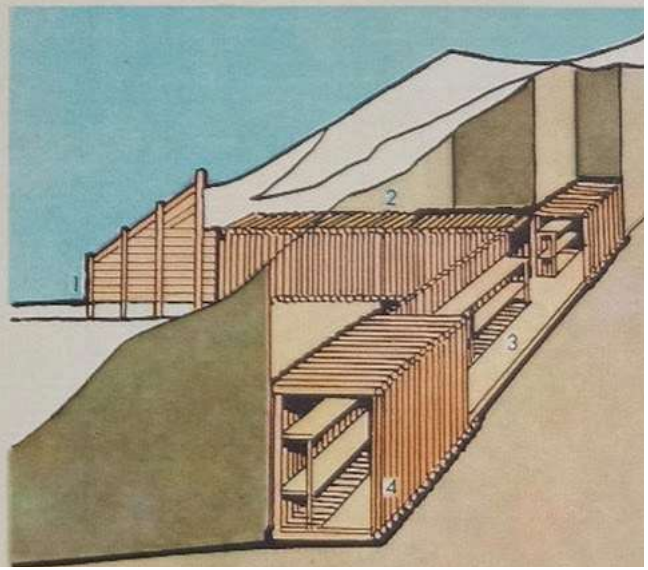


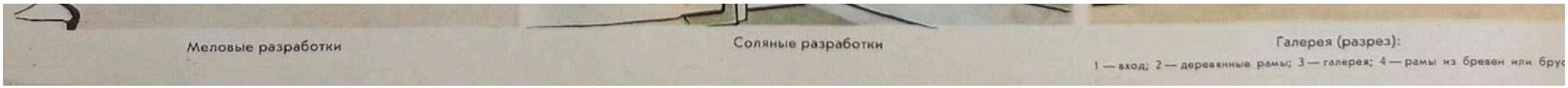
Укрытие из саманных блоков

В районах горнодобывающей и угольной промышленности под укрытия могут быть использованы шахты, рудники, выработки по добыче строительных материалов, катакомбы, пещеры и др.









Меловые разработки

Соляные разработки

Галерея (разрез):

1 — вход; 2 — деревянные рамы; 3 — галерея; 4 — рамы из бревен или бру

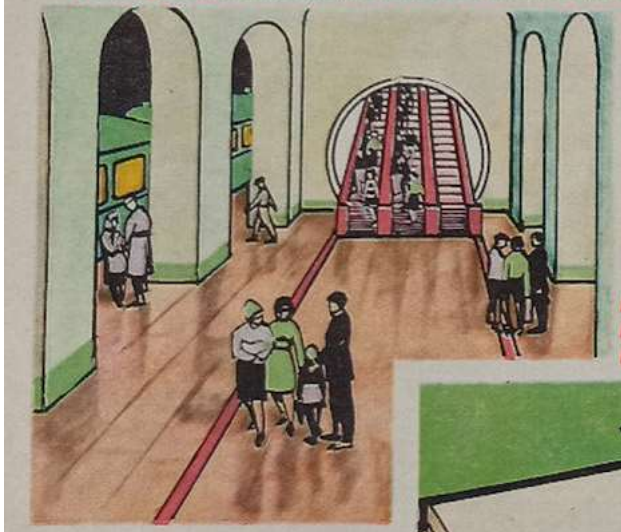
УБЕЖИЩА, ПОСТРОЕННЫЕ С УЧЕТОМ ИХ ИСПОЛЬЗОВАНИЯ В МИРНОЕ ВРЕМЯ ДЛЯ НУЖД НАРОДНОГО ХОЗЯЙСТВА

SHELTERS BUILT TAKING INTO ACCOUNT THEIR USE IN PEACETIME FOR THE NEEDS OF THE NATIONAL ECONOMY

К убежищам предъявляются специальные требования: надежность защитных устройств и внутреннего оборудования; возможность самостоятельного выхода людей после ядерного взрыва, использование в мирное время для нужд народного хозяйства.

Подземные гаражи, предприятия общественного питания, склады, шахты и горные выработки обладают большой прочностью и имеют необходимое оборудование. В военное время они могут быть быстро подготовлены для укрытия людей.

Shelters must have reliable protection and equipment and an escape exit for emergencies where the entrance is blocked, and peacetime uses for economy. Underground garages, catering establishments, warehouses, mines and mine workings are highly durable and have the necessary equipment. In wartime, they can be quickly prepared to shelter people.



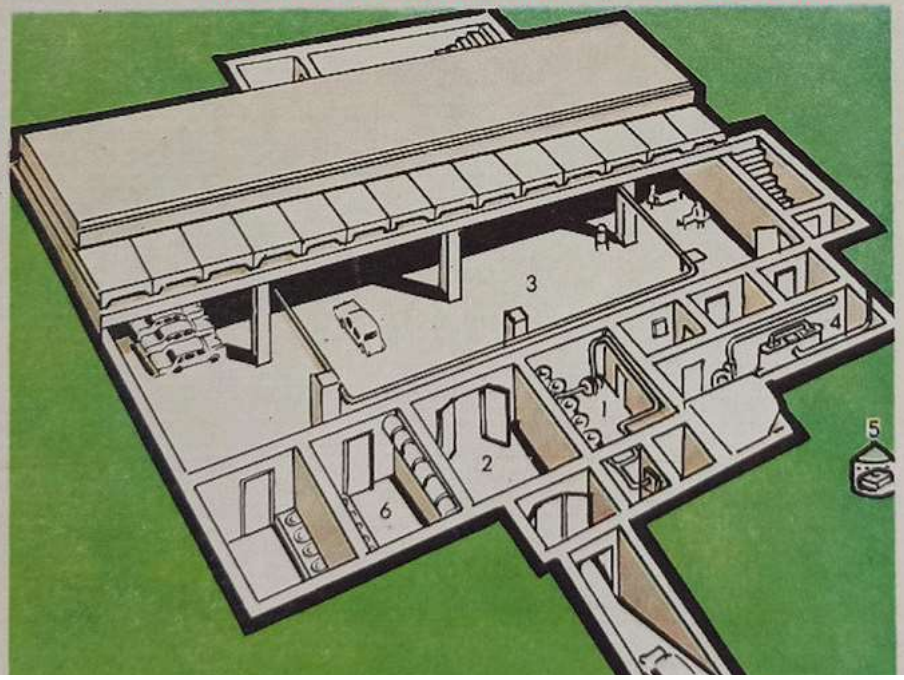
Метрополитены обладают высокими защитными свойствами и являются наиболее современным коллективным средством защиты людей от оружия массового поражения

КОЭФФИЦИЕНТ ОСЛАБЛЕНИЯ ИЗЛУЧЕНИЯ:

Каменное одноэтажное строение	10—13 раз
Подвал каменного одноэтажного строения	40—60 »
Каменное двухэтажное строение	15—20 »
Подвал каменного двухэтажного строения	100—130 »
Каменное трехэтажное строение	20—33 раза
Подвал каменного трехэтажного строения	400—600 раз
Перекрытые щели	40—50 »
Противорадиационные укрытия и убежища	400—1000 »
Пассажирские вагоны	3 раза
Грузовые вагоны	2 »
Кабины бульдозеров, кранов	4 »

Шахты, горные выработки — облучение практически исключено

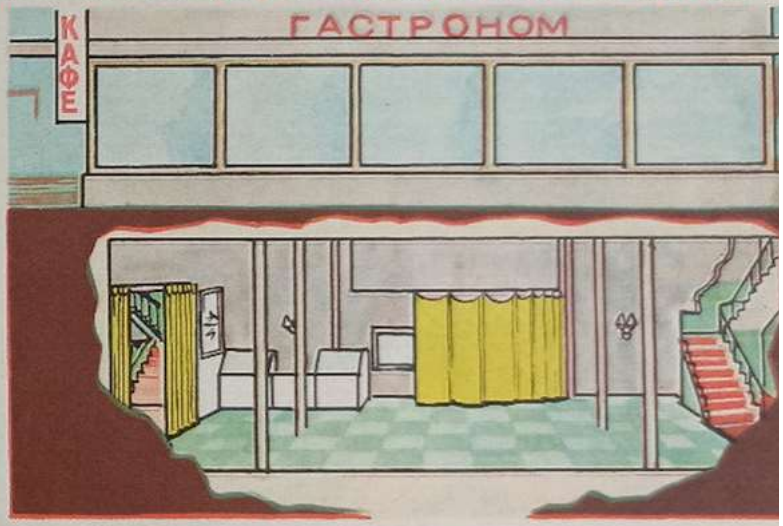
Radiation protection factors: 1-story house 10-13; basement of 1-story house 40-60; 2-story house 15-20; basement of 2-story house 100-130; ... shelters 400-1000



Dual use underground large capacity car park/garage, with equipment to allow immediate conversion into a shelter

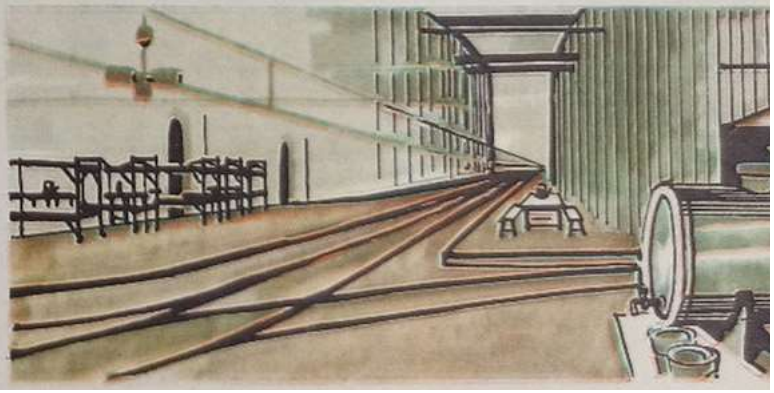
Отдельно стоящее убежище — гараж большой вместимости:

1 — помещение фильтровентиляционного оборудования; 2 — тамбур-шлюз с защитно-герметическими дверями (воротами); 3 — помещение для укрываемых; 4 — помещение для электрогенераторов с дизельны-



Убежище, построенное с учетом использования его в мирное время под кафетерий

Dual use underground basement shelter built for use as a cafeteria in in peacetime



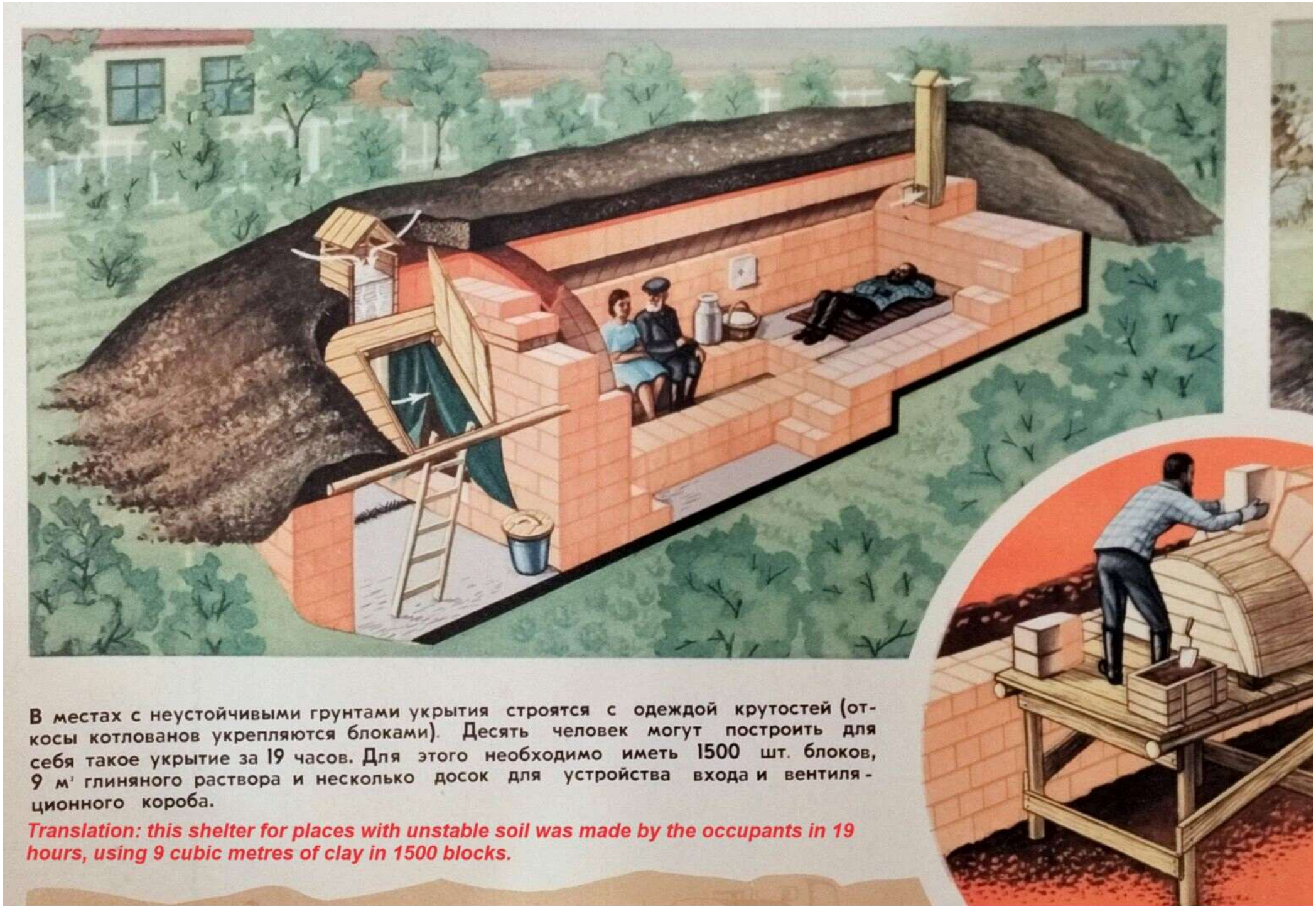
ми установками; 5 — вентиляционный оголовок с защитным устройством для отсекания ударной волны; 6 — помещение санузла с резервуаром запаса воды

water tank



Специально оборудованная шахта

Mine equipped for dual use as a shelter



В местах с неустойчивыми грунтами укрытия строятся с одеждой крутостей (откосы котлованов укрепляются блоками). Десять человек могут построить для себя такое укрытие за 19 часов. Для этого необходимо иметь 1500 шт. блоков, 9 м³ глиняного раствора и несколько досок для устройства входа и вентиляционного короба.

Translation: this shelter for places with unstable soil was made by the occupants in 19 hours, using 9 cubic metres of clay in 1500 blocks.

Extract from 1972 Russian nuclear shelters poster "Anti-radiation shelters made of Adobe blocks" giving several designs that have a fallout gamma radiation protection factor of 400-700, using adobe/clay blocks.




ФИЛЬТРУЮЩИЕ ПРОТИВОГАЗЫ
ОБЕСПЕЧИВАЮТ ЗАЩИТУ ОТ ПОПАДАНИЯ В ОРГАНЫ ДЫХАНИЯ, ГЛАЗА И НА ЛИЦО РАДИОАКТИВНЫХ, ОТРАВЛЯЮЩИХ ВЕЩЕСТВ И БАКТЕРИАЛЬНЫХ (БИОЛОГИЧЕСКИХ) СРЕДСТВ
ПРОТИВОГАЗЫ ДЛЯ ВЗРОСЛЫХ
ОБЩЕВОЙСКОВОЙ ПРОТИВОГАЗ
ГП-5
ГП-4у
ДЕТСКИЕ ПРОТИВОГАЗЫ
ПДФ-Ш
ПДФ-7
ДП-6
50000 copies
1986 Russian gas masks poster

Uncovering the Nuclear Shelter at the Heart of the Moscow...

Правительственные бункеры Москвы — лекция Дмитр...

Winston the Cat
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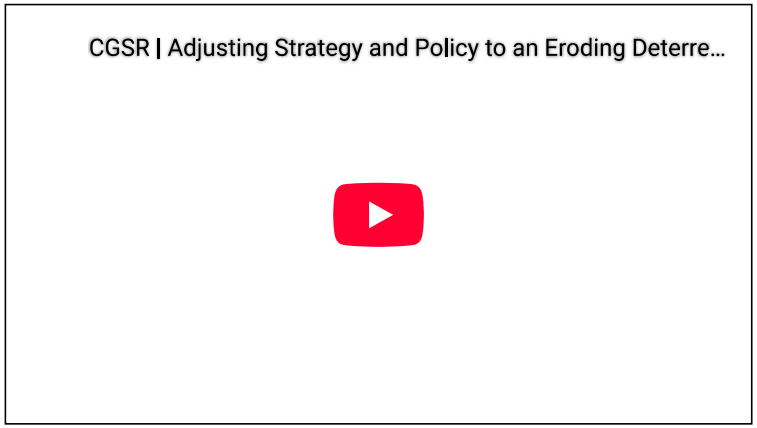
Russian propagandists are discussing the best way to scare the West - testing a nuclear Tsar Bomb or checking bomb shelters.

Watch on X

4:43 PM · Oct 4, 2023

109 Reply Copy link

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Hiroshima and Nagasaki terrorist liars debunked by secret American government evidence that simple shelters worked, REPORT LINKED HERE (this was restricted from public view and never published by the American government, and Glasstone's lying Effects of Nuclear Weapons book reversed its evidence for propaganda purposes, a fact still covered by all the lying cold war pseudo "historians" today), Operation **Hurricane 1952 declassified nuclear weapon test data (here)**, declassified **UK nuclear tested shelter research reports (here)**, declassified **EMP nuclear test research data (here)**, declassified **clandestine nuclear bombs in ships attack on Liverpool study (here),** declassified **fallout decontamination study for UK recovery from nuclear attack (here),** declassified **Operation Buffalo surface burst and near surface burst fallout patterns, water decontamination, initial radiation shielding at Antler nuclear tests, and resuspension of deposited fallout dust into the air (inhalation hazard) at different British nuclear tests, plus Operation Totem nuclear tests crater region radiation surveys (here)**, declassified **Operation Antler nuclear blast precursor waveforms (here)**, declassified **Operation Buffalo nuclear blast precursor waveforms (here),** declassified **UK Atomic Weapons Establishment nuclear weapons effects symposium (here)**, and declassified **UK Atomic Weapons Establishment paper on the gamma radiation versus time at Crossroads tests Able and Baker (here, paper by inventor of lenses in implosion weapons, James L. Tuck of the British Mission to Los Alamos and Operation Crossroads, clearly showing how initial gamma shielding in an air burst can be achieved with a few seconds warning and giving the much greater escape times available for residual radiation dose accumulations in an underwater burst; key anti-nuclear hysteria data kept covered up by Glasstone and the USA book Effects of Nuclear Weapons)**, and Penney and Hicks **paper on the base surge contamination mechanism (here),** and **Russian nuclear warhead design evidence covered-up by both America and the so-called arms control and disarmament "experts" who always lie and distort the facts to suit their own agenda to try to start a nuclear war (linked here). If they wanted "peace" they'd support the proved facts, available on this blog nukegate.org since 2006, and seek international agreement to replace the incredible, NON-war deterring strategic nuclear weapons with safe tactical neutron warheads which collateral damage averting and invasion-deterring (thus war deterring in all its forms, not only nuclear), plus civil defence against all forms of collateral damage from war, which reduces escalation risks during terrorist actions, as proved in wars which don't escalate because of effective civil defence and credible deterrence (see below). Instead, they support policies designed to maximise civilian casualties and to deliberately escalate war, to profit "politically" from the disasters caused which they blame falsely on nuclear weapons, as if deterrence causes war! (Another lie believed by mad/evil/gullible mainstream media/political loons in "authority".) A good summary of the fake news basis of "escalation" blather against credible tactical nuclear deterrence of the invasions that set off wars is inadvertently provided by Lord David Owen's 2009 "Nuclear Papers" (Liverpool Uni Press), compiling his declassified nuclear disarmament propaganda reports written while he was UK Foreign Secretary 1977-9. It's all Carter era appeasement nonsense. For example, on pp158-8 he reprints his Top Secret 19 Dec 1978 "Future of the British Deterrent" report to the Prime Minister which states that "I am not convinced by the contention ... that the ability to destroy at least 10 major cities, or inflict damage on 30 major targets ... is the minimum criterion for a British deterrent." (He actually thinks this is too strong a deterrent, despite the fact it is incredible for the realpolitik tactics of dictators who make indirect provocations like invading their neighbours!) The reality Owens ignores is that Russia had and still has civil defence shelters and evacuation plans, so threatening some damage in retaliation is not a credible deterrent against the invasions that set off both world wars. On page 196, he gives a Secret 18 April 1978 paper stating that NATO then had 1000 nuclear artillery pieces (8" and 155mm), 200 Lance and Honest John tactical nuclear missile systems, 135 Pershing; all now long ago disarmed and destroyed while Russian now has over 2000 dedicated tactical nuclear weapons of high neutron output (unlike EM1's data for the low yield option of the multipurpose NATO B61). Owen proudly self-congratulates on his Brezhnev supporting anti-neutron bomb ranting 1978 book, "Human Rights", pp. 136-7. If Owen really wants "Human Rights", he needs to back the neutron bomb now to deter the dictatorships which destroy human rights! His 2009 "Nuclear Papers" at p287 gives the usual completely distorted analysis of the Cuban missiles crisis, claiming that despite the overwhelming American tactical and strategic nuclear superiority for credible deterrence in 1962, the world came "close" to a nuclear war. It's closer now, mate, when thanks to your propaganda we no longer have a credible deterrent, civil defence, tactical neutron warheads. Pathetic.**

ABOVE secret reports on Australian-British nuclear test operations at Maralinga in 1956 and 1957, Buffalo and Antler, proved that even at 10 psi peak overpressure for the 15 kt Buffalo-1 shot, the dummy lying prone facing the blast was hardly moved due to the low cross-sectional area exposed to the blast winds, relative to standing dummies which were severely displaced and damaged. The value of trenches in protecting personnel against blast winds and radiation was also proved in tests (**gamma radiation shielding of trenches had been proved at an earlier nuclear test in Australia, Operation Hurricane** in 1952). (Antler **report linked here**; Buffalo **report linked here**.) This debunks the US Department of Defense models claiming that people will automatically be blown out of the upper floors of modern city buildings at very low pressures, and killed by the gravitational impact with the pavement below! In reality, tall buildings mutually shield one another from the blast winds, not to mention the radiation (proven in the latest post on this blog), and on seeing the flash most people will have time to lie down on typical surfaces like carpet which give a frictional resistance to displacement, ignored in fiddled models which assume surfaces have less friction than a skating rink; all of this was omitted from the American 1977 Glasstone and Dolan book "The Effects of Nuclear Weapons". As Tuck's paper below on the gamma radiation dose rate measurements on ships at Operation Crossroads, July 1946 nuclear tests proved, contrary to Glasstone and Dolan, scattered radiation contributions are small, so buildings or ships gun turrets provided excellent radiation "shadows" to protect personnel. This effect was then calculated by UK civil defence weapons effects expert Edward Leader-Williams in his paper presented at the UK's secret London Royal Society *Symposium on the Physical Effects of Atomic Weapons,* but the nuclear test data as always was excluded from the American Glasstone book published the next year, *The Effects of Atomic Weapons* in deference to lies about the effects in Hiroshima, including an "average" casualty curve which deliberately obfuscated huge differences in survival rates in different types of buildings and shelters, or simply in shadows!

Downgraded April 1984 Y.M.C.A
DEFE 16/165
UNCLASSIFIED [redacted]

T 2/59

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UNITED KINGDOM ATOMIC ENERGY AUTHORITY

ATOMIC WEAPONS RESEARCH ESTABLISHMENT

REPORT No. T 2/59

OPERATION BUFFALO

Target Response Tests
(Co-ordinator: E. R. Drake Seager)

Biology Group
(Group Leader: R. Scott Russell)

Part 3(a): The Effects of Blast on Dummy Men Exposed in the Open

W. J. H. Butterfield, Medical Research Council
Maj. E. G. Hardy, RAMC
E. R. Drake Seager

A.W.R.E.,
Aldermaston, Berks.

UNCLASSIFIED [redacted]

July, 1959



FIGURE 2. PRONE DUMMIES AT SITE Nº 1 BEFORE THE EVENT



FIGURE 4. DUMMY AFTER DISPLACEMENT OF 42 ft
PRONE FACING POSITION AT SITE Nº 1

TABLE 2

Displacements Classified According to Drag Pressure, Posture and Orientation

BUFFALO-1, 15 KT

Site No.	Drag Pressure, p.s.i.	Overpressure, p.s.i.	Posture					
			Prone		Crouching		Standing	
			Facing, ft	Sideways, ft	Facing, ft	Sideways, ft	Facing, ft	Sideways, ft
1	7.4 PRECURSOR	18†	42	66	-	-	-	-
2	4.4	14.5	2.5	69	-	-	-	-
3	3.7	12	2	20	15	39	-	-
4	2.7	10	1	8	16	18	35	20
5	1.9	8.5	1	24*	9	9	30	16
6	1	6.4	-	-	6	9	16	10
7	0.43	4.3	-	-	1	3(4)	4(7)	3(6)
8	0.11	2.4	-	-	-	-	2(5)	0

*This dummy was sited on firm rocky ground. All others were sited on soft ground.

†Multiple peaks in overpressure record.

At 10 psi peak overpressure in the 15 kiloton Buffalo-1 nuclear weapon test at Maralinga in 1956, dummies lying facing the burst (to minimise area exposed to blast) were only dragged 1 foot by blast!

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ARMAMENT RESEARCH ESTABLISHMENT

SYMPOSIUM

ON

THE PHYSICAL EFFECTS OF ATOMIC WEAPONS

PAPER No. 10

Observations of the Delayed Gamma Radiation as a function of time in Tests ABLE and BAKER at BIKINI

J. L. Tuck

Observations of the Delayed Gamma Radiation as a Function of Time in Tests ABLE and BAKER at BIKINI

J.L. Tuck

Summary

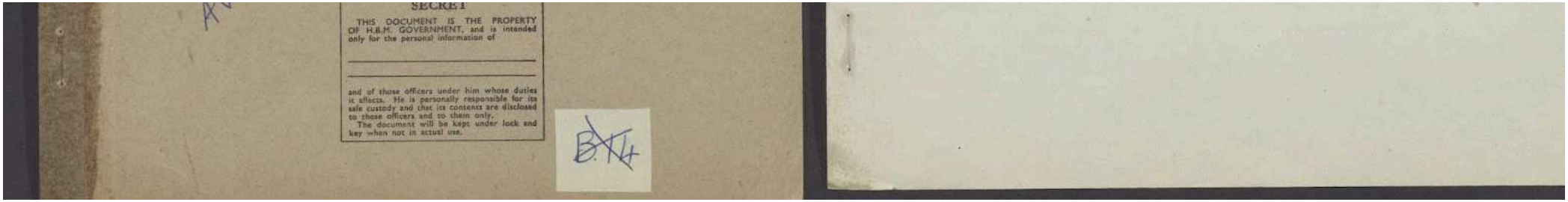
The intensity of gamma radiation in tests Able and Baker was measured by an ionization chamber recording equipment over the period from one second to several hours after the explosion and at several points throughout the ship array.

In the air shot the gamma rays came as an intense burst falling off at a rate such that half the total dose was received in the first second. This observed variation of gamma ray intensity is roughly compatible with a hypothesis that most of the fission products stay in the ball of fire, emitting delayed gamma rays at the rate observed in the laboratory. Intensity after the first minute was small on account of the low residual contamination.

In the underwater shot the initial burst of intensity was negligible, the main part of the dose being received during the sustained rise of intensity attributable to the return of fission products to the vicinity of the ships as rain and mist. In this case the time to half dose was from 8 to 20 minutes. A high degree of local contamination was produced.

Estimates of gamma dose were found to agree with independent estimates made by the radiological group from similarly located films.

Tactically the dosage rates are such that, in an ABLE type attack, exposed personnel could benefit by prompt dodging behind a shield while, in a BAKER type attack, personnel would have ample time to take cover; ships with steam up could reduce the dose by moving away.


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B.K4

23 kt air burst at 520 feet altitude over ship array in Bikini Lagoon (salt water)

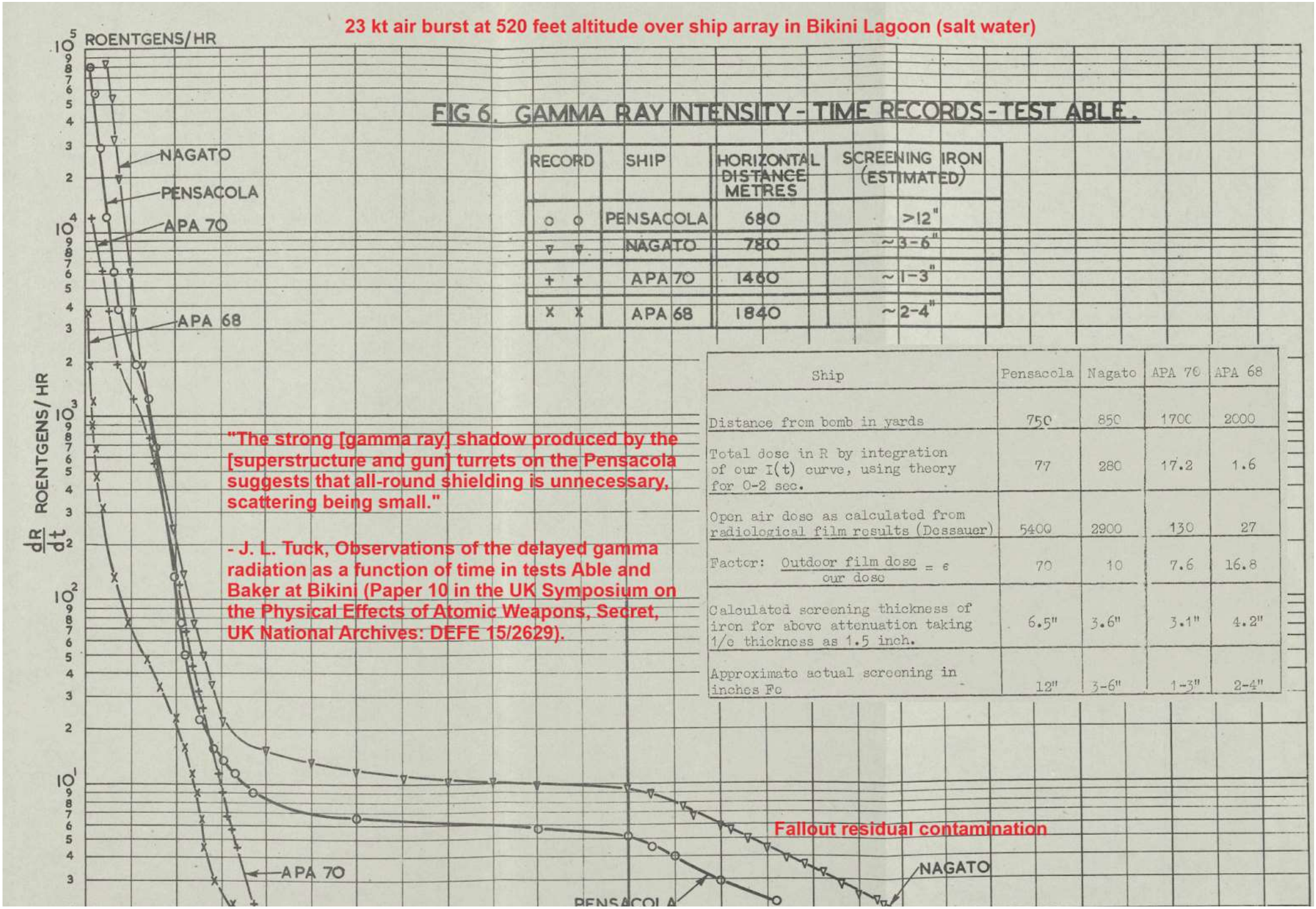


FIG 6. GAMMA RAY INTENSITY - TIME RECORDS - TEST ABLE.

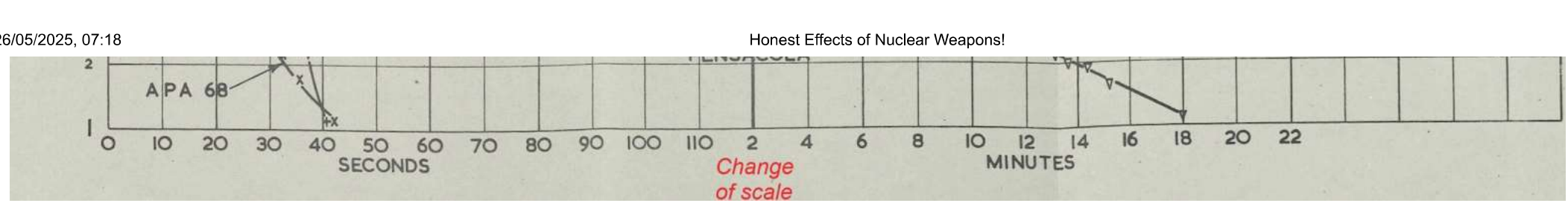
RECORD	SHIP	HORIZONTAL DISTANCE METRES	SCREENING IRON (ESTIMATED)
o o	PENSACOLA	680	>12"
▽ ▽	NAGATO	780	~3-6"
+ +	APA 70	1460	~1-3"
X X	APA 68	1840	~2-4"

Ship	Pensacola	Nagato	APA 70	APA 68
Distance from bomb in yards	750	850	1700	2000
Total dose in R by integration of our I(t) curve, using theory for 0-2 sec.	77	280	17.2	1.6
Open air dose as calculated from radiological film results (Dessauer)	5400	2900	130	27
Factor: $\frac{\text{Outdoor film dose}}{\text{our dose}} = \epsilon$	70	10	7.6	16.8
Calculated screening thickness of iron for above attenuation taking 1/e thickness as 1.5 inch.	6.5"	3.6"	3.1"	4.2"
Approximate actual screening in inches Fe	12"	3-6"	1-3"	2-4"

"The strong [gamma ray] shadow produced by the [superstructure and gun] turrets on the Pensacola suggests that all-round shielding is unnecessary, scattering being small."

- J. L. Tuck, Observations of the delayed gamma radiation as a function of time in tests Able and Baker at Bikini (Paper 10 in the UK Symposium on the Physical Effects of Atomic Weapons, Secret, UK National Archives: DEFE 15/2629).

Fallout residual contamination

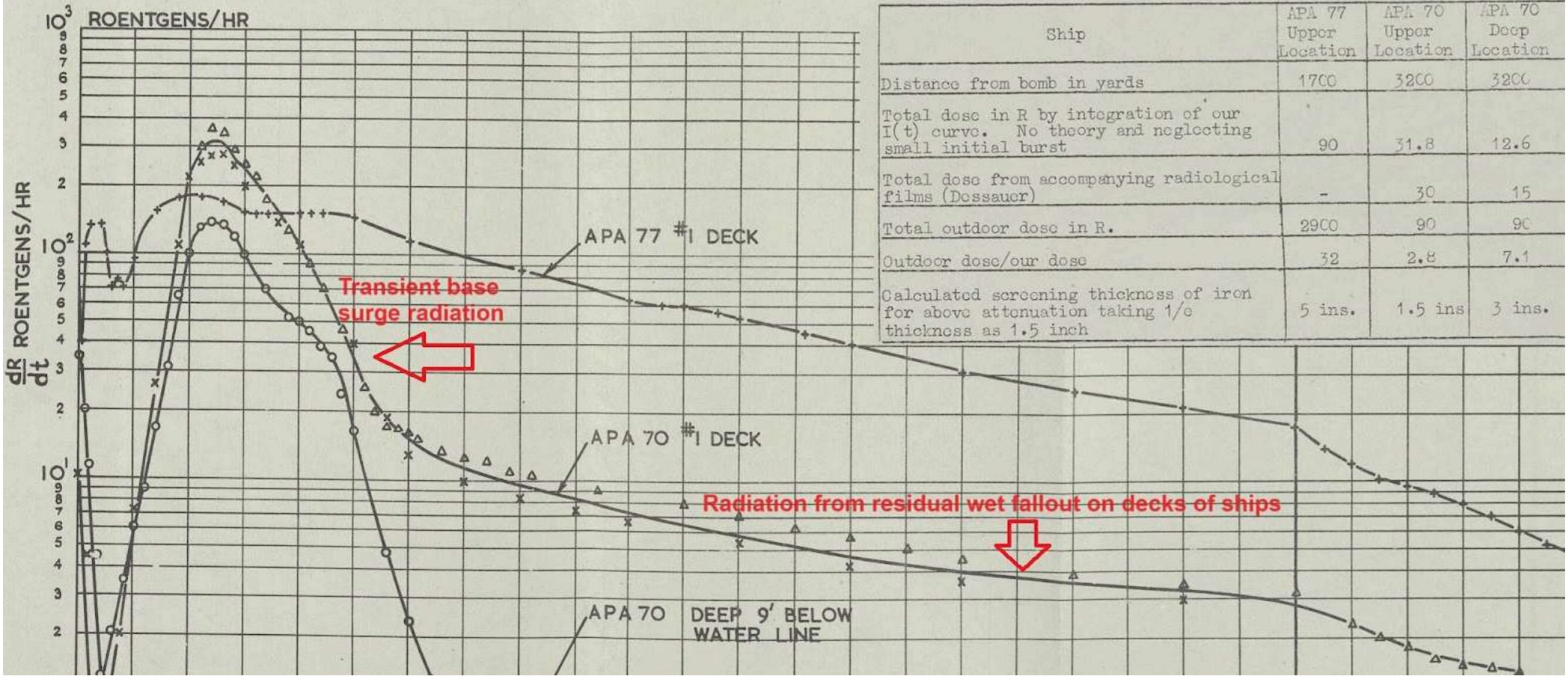

2
1
APA 68
0 10 20 30 40 50 60 70 80 90 100 110 2 4 6 8 10 12 14 16 18 20 22
SECONDS
MINUTES
Change of scale

23 kt burst at 90 feet underwater in 180 feet deep Bikini Lagoon (sea water)

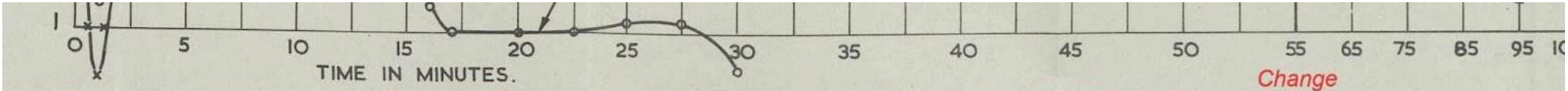
FIG 7. GAMMA RAY INTENSITY -TIME RECORDS - TEST BAKER.

RECORD	SHIP	HORIZONTAL DISTANCE	SCREENING IRON (ESTIMATED)	LOCATION IN SHIP	
+ +	APA 77 CRITTENDEN	(METRES) 1370	1½"	# 1 DECK FORWARD TROOP HEAD	SPECIAL CHAMBER
× ×	APA 70 (CARTERET)	2740	1½"	# 1 DECK FORWARD TROOP HEAD TWIN INSTALLATION	× × SPECIAL CHAMBER
△ △	"	"	"	" "	△ △ NORMAL CHAMBER
○ ○	APA 70 (CARTERET)	2740	3/8 HORIZONTAL + SEAWATER	FORWARD STORES 9' BELOW WATER LINE	NORMAL CHAMBER

THESE SHOULD BE IDENTICAL

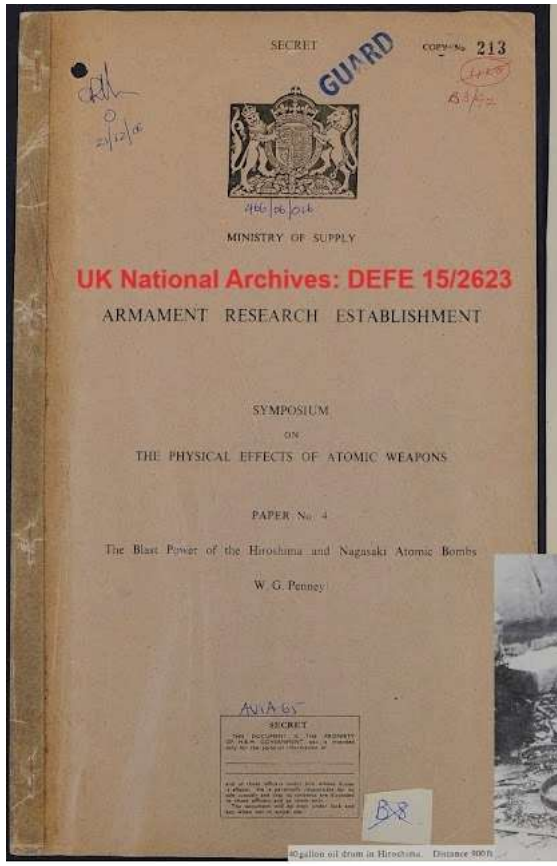


Ship	APA 77 Upper Location	APA 70 Upper Location	APA 70 Deep Location
Distance from bomb in yards	1700	3200	3200
Total dose in R by integration of our I(t) curve. No theory and neglecting small initial burst	90	31.8	12.6
Total dose from accompanying radiological films (Dossauer)	-	30	15
Total outdoor dose in R.	2900	90	90
Outdoor dose/our dose	32	2.8	7.1
Calculated screening thickness of iron for above attenuation taking 1/e thickness as 1.5 inch	5 ins.	1.5 ins	3 ins.



J. L. Tuck, UK Symposium on the Physical Effects of Atomic Weapons, paper 10, UK Nat. Arch. DEFE 15/2629

Change of scale


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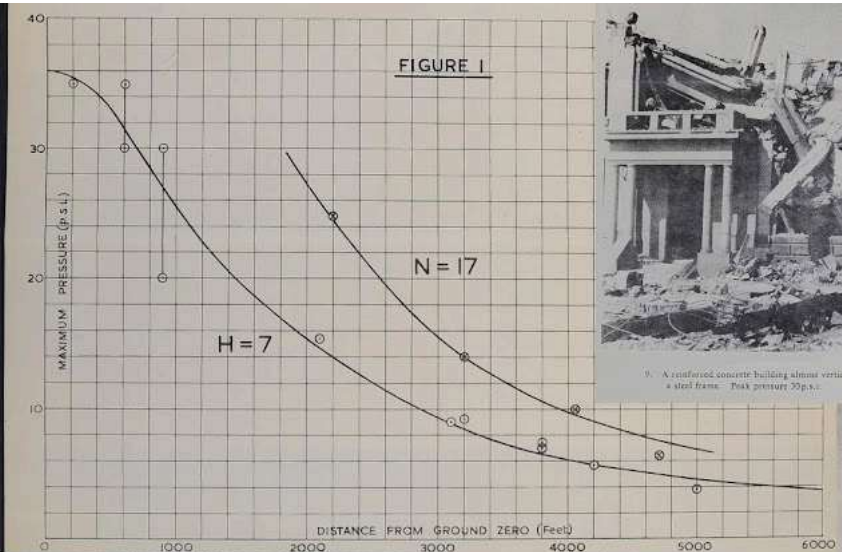
SYMPOSIUM ON THE PHYSICAL EFFECTS OF ATOMIC WEAPONS

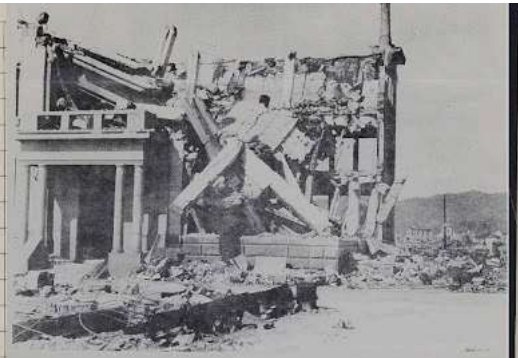
PAPER No. 4

The Blast Power of the Hiroshima and Nagasaki Atomic Bombs

W. G. Penney

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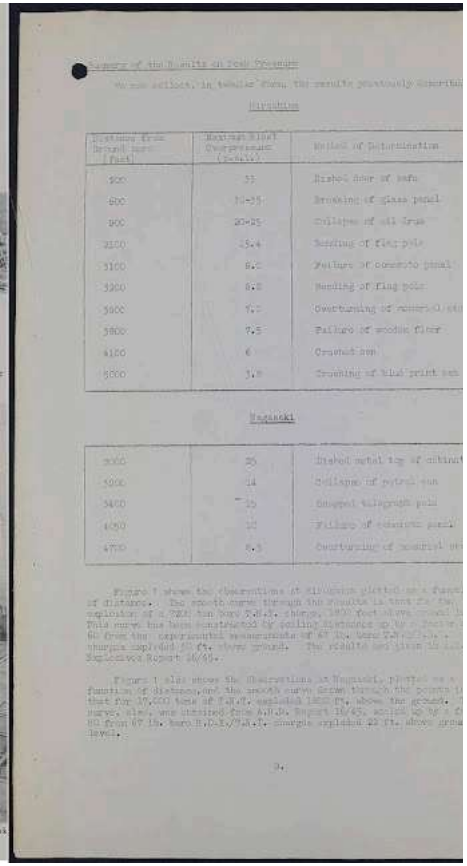

9. A reinforced concrete building almost vertically under the Hiroshima bomb. The building did not have a steel frame. Peak pressure 30 p.s.i.


40 gallon oil drum in Hiroshima. Distance 800 ft.



5 gallon drums at Bikini


Gas-proof container from Hiroshima. Distance 5000 ft., peak pressure 3.8 p.s.i.


Summary of the Results on Peak Pressure

We can collect, in tabular form, the results previously described:

Hiroshima

Distance from Ground Zero (Feet)	Maximum Blast Overpressure (lbs/sq.in.)	Method of Determination
900	35	Bricked door of safe
600	30-35	Breaking of glass panel
900	20-25	Collapse of oil drum
3100	15.4	Bending of flag-pole
3100	8.0	Failure of concrete panel
3200	8.0	Bending of flag-pole
3900	7.2	Overturning of concrete obj
3800	7.5	Failure of wooden fiter
4100	6	Crushed can
5000	3.8	Crushing of blue print can

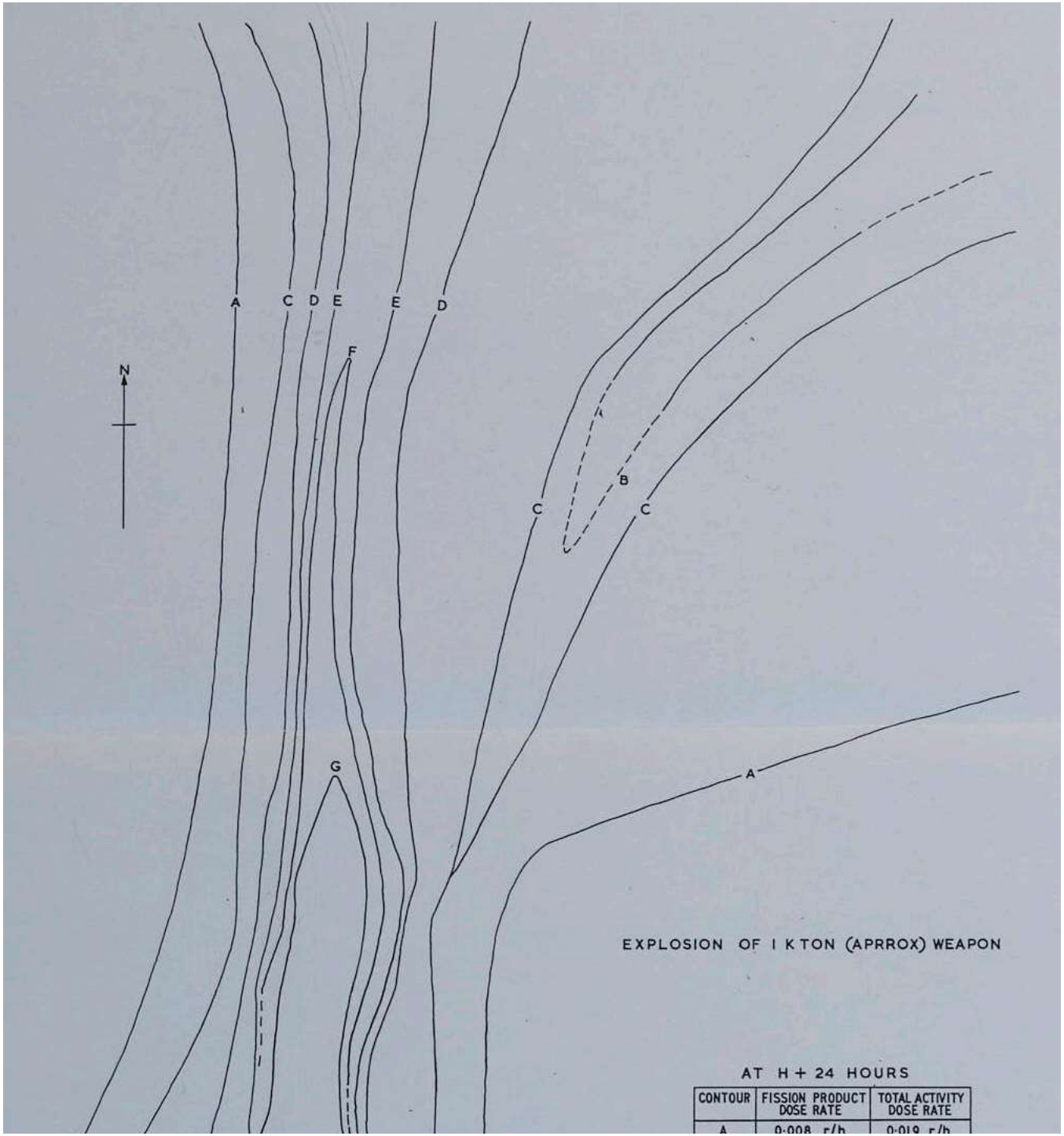
Nagasaki

3000	25	Dished metal top of cylind
5000	14	Collapse of petrol can
5400	10	Snapped telegraph pole
6450	10	Failure of concrete panel
6700	8.3	Overturning of concrete ob

Figure 1 shows the observations of air-pressure plotted as a function of distance. The smooth curve through the results is that for the explosion of a 20kt ton bomb 7.4 ft. above ground. This curve has been constructed by scaling distances up by a factor of 1.6 from the experimental measurements of 47 lbs. sq. in. for 8 kt. charges exploded 50 ft. above ground. The results are given in Supplement Report 16/45.

Figure 1 also shows the observations at Nagasaki, plotted as a function of distance, and the smooth curve drawn through the points is that for 17,000 tons of T.N.T. exploded 1850 ft. above the ground. This curve, also constructed from A.R.E. Report 16/45, scales up by a factor of 1.6 from 67 lb. sq. in. for 8 kt. T.N.T. charges exploded 50 ft. above ground level.

3.


A
C
D
E
E
D
F
N
C
B
C
A
G
EXPLOSION OF 1 K TON (APRROX) WEAPON
AT H + 24 HOURS
CONTOUR
FISSION PRODUCT DOSE RATE
TOTAL ACTIVITY DOSE RATE
A
0·008 r/h
0·019 r/h

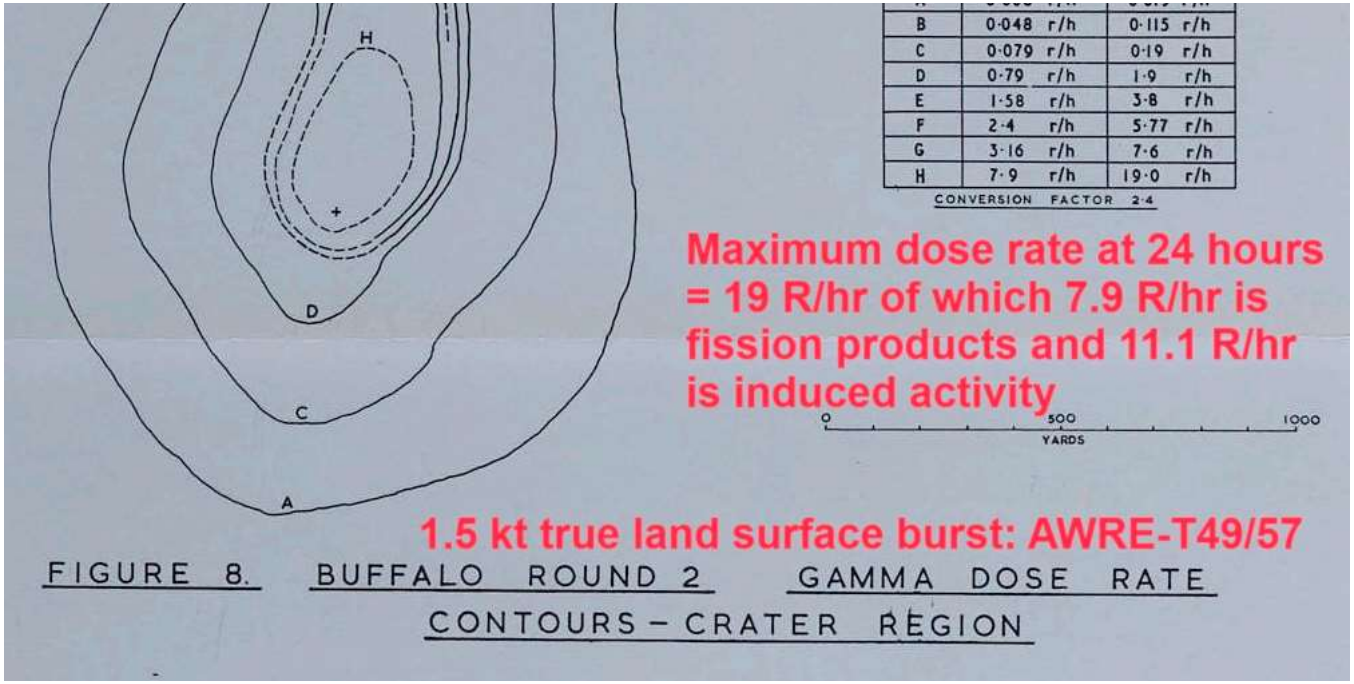
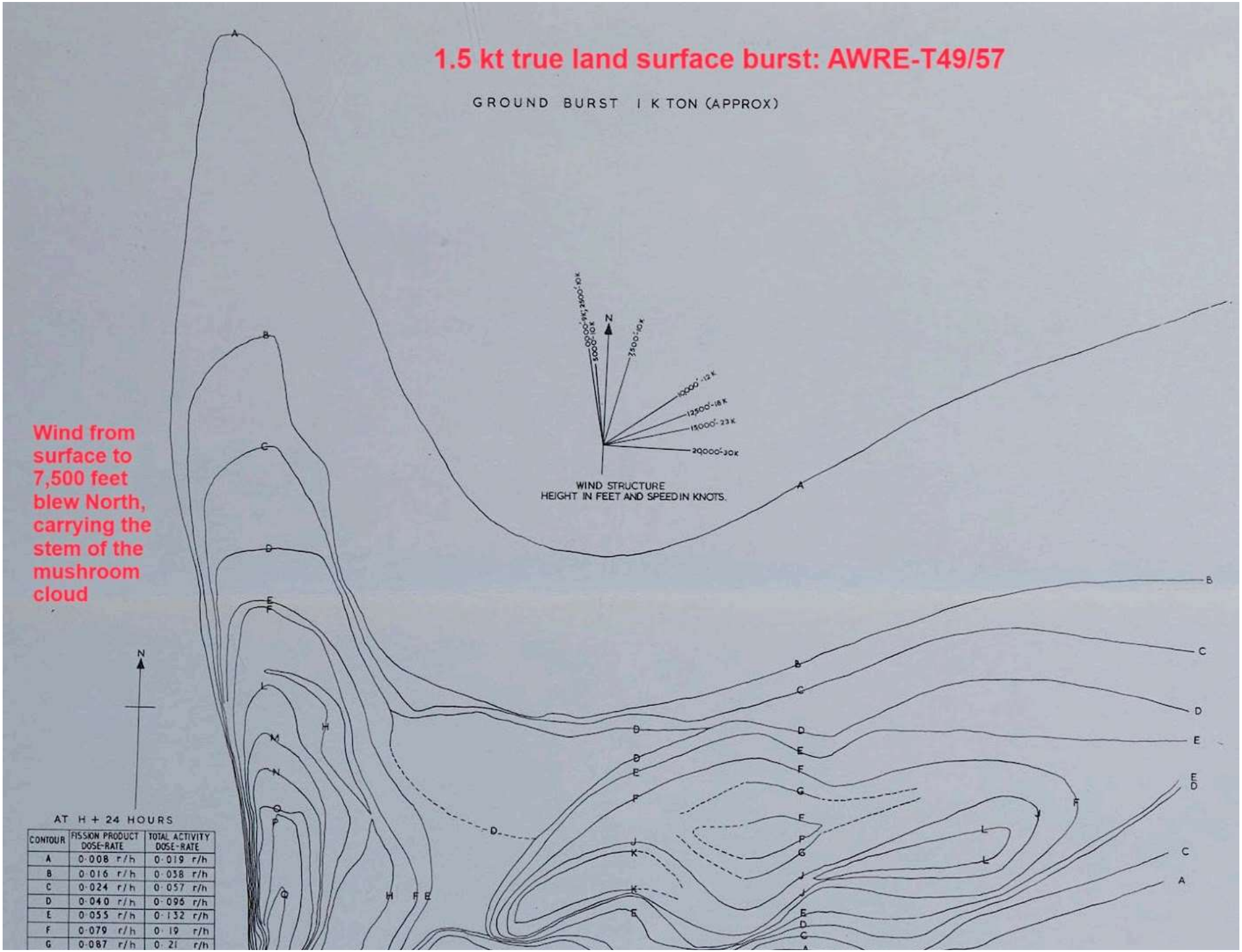


FIGURE 8. BUFFALO ROUND 2 GAMMA DOSE RATE CONTOURS – CRATER REGION

1.5 kt true land surface burst: AWRE-T49/57



CONTOUR	FISSION PRODUCT DOSE-RATE	TOTAL ACTIVITY DOSE-RATE
A	0·008 r/h	0·019 r/h
B	0·016 r/h	0·038 r/h
C	0·024 r/h	0·057 r/h
D	0·040 r/h	0·096 r/h
E	0·055 r/h	0·132 r/h
F	0·079 r/h	0·19 r/h
G	0·087 r/h	0·21 r/h

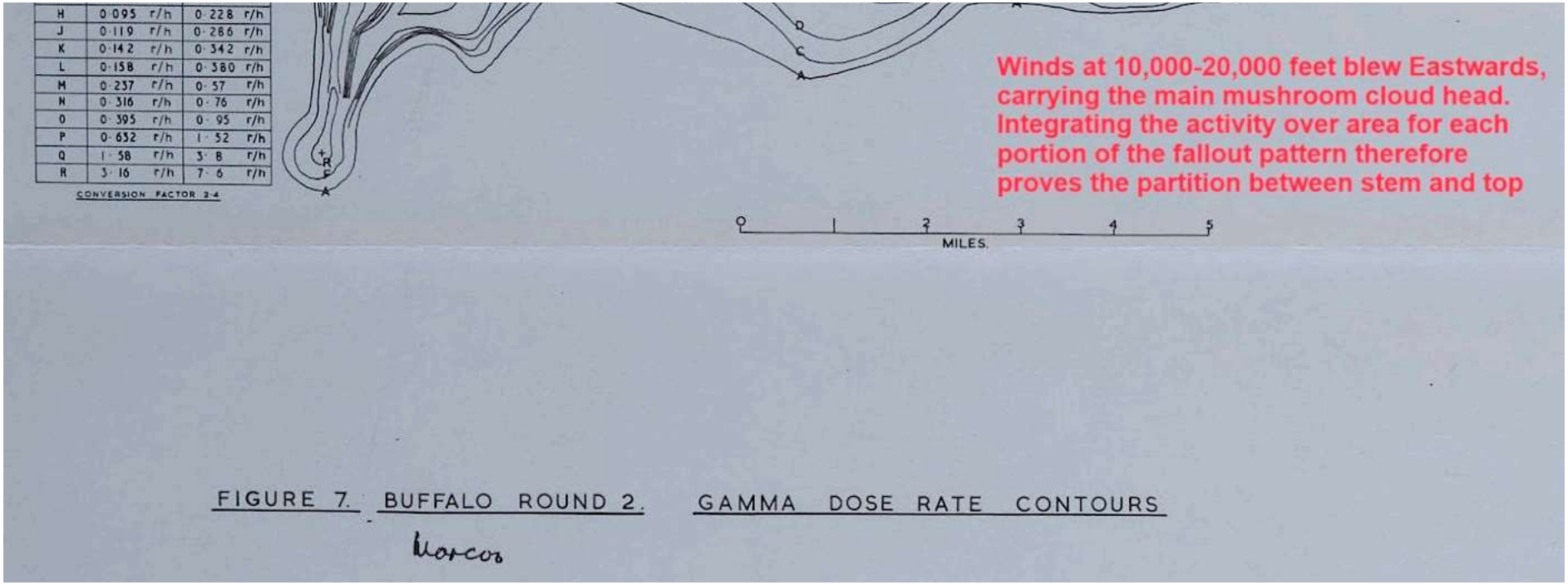
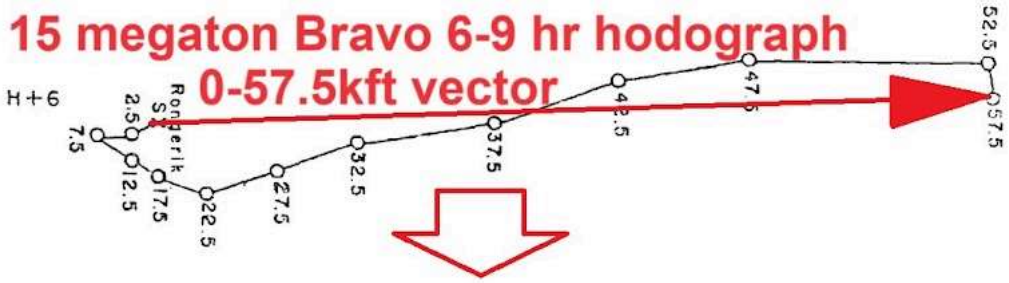
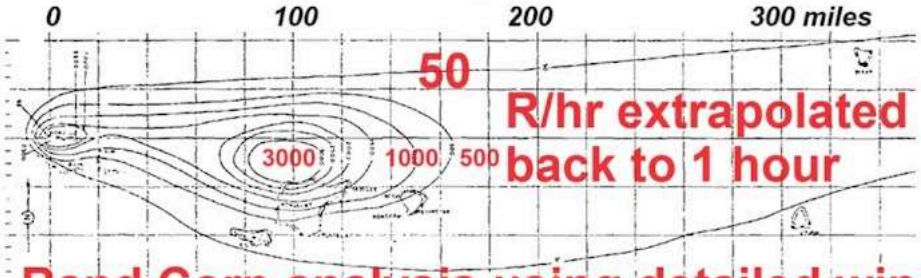


FIGURE 7. BUFFALO ROUND 2. GAMMA DOSE RATE CONTOURS

Marcos

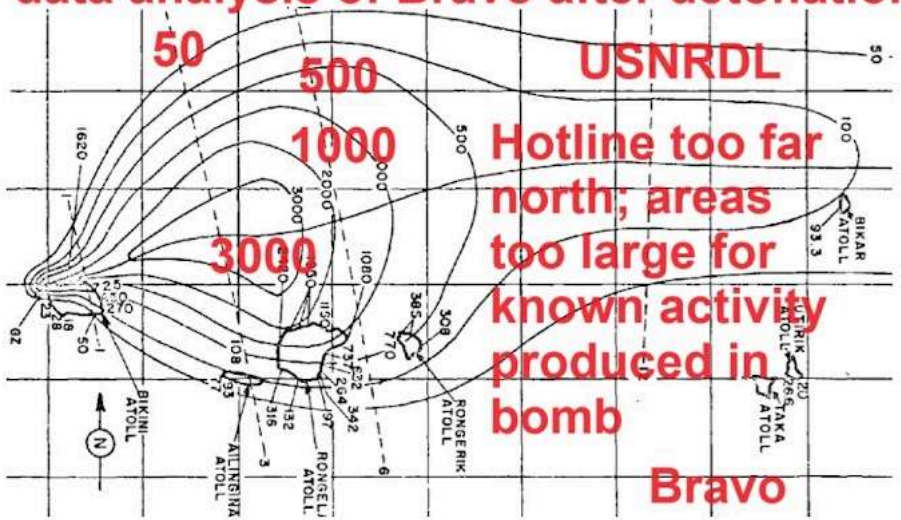
15 megaton Bravo 6-9 hr hodograph
0-57.5kft vector



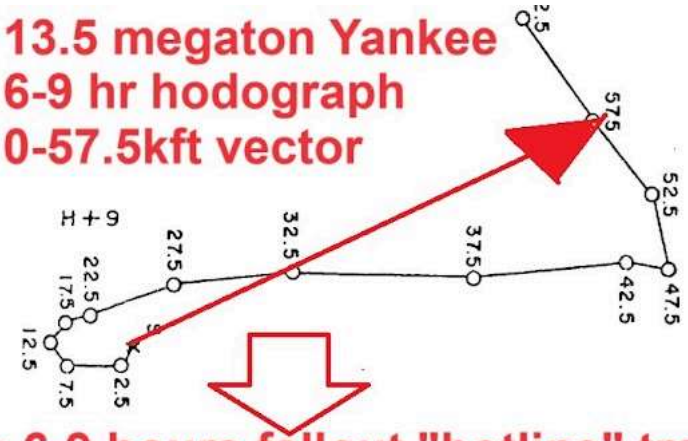


R/hr extrapolated back to 1 hour

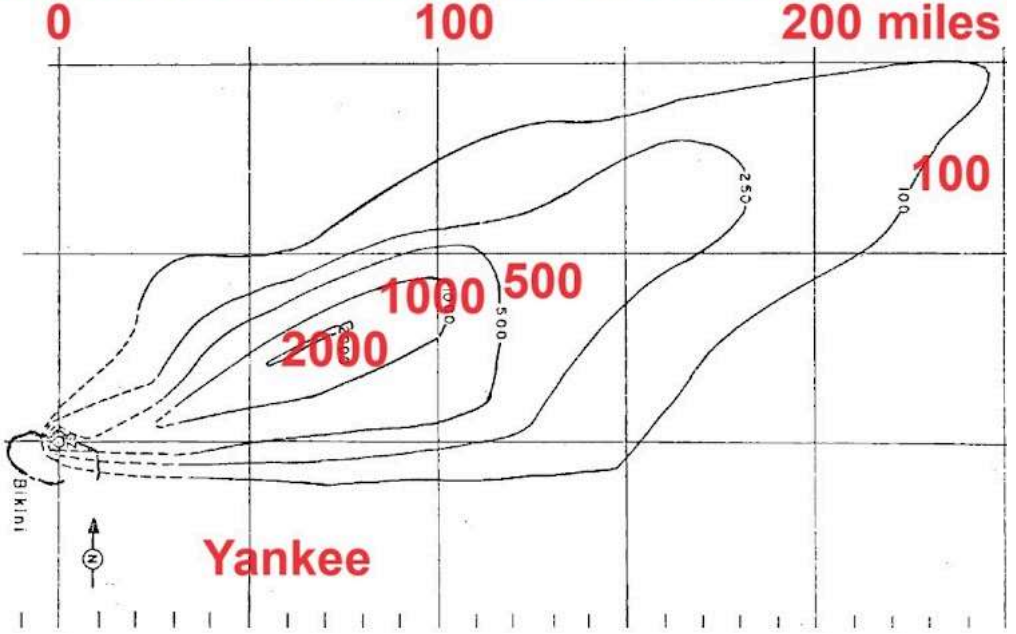
Rand Corp analysis using detailed wind data analysis of Bravo after detonation



13.5 megaton Yankee
6-9 hr hodograph
0-57.5kft vector



The 6-9 hours fallout "hotline" trajectory corresponds to the net 6-9 hours wind hodograp



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Collated Papers Presented at the

NUCLEAR WEAPON EFFECTS SYMPOSIUM

Held at Ministry of Defence, Main Building
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on
Friday 11 December 1970

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GENERAL POSITION REPORT ON NUCLEAR WEAPON EFFECTS

A D Greenhalgh (AWRE)

1 Introduction

Nuclear Weapon outputs are well defined in Capabilities, DASA EM1 (previously known as TM-23-200), [Ref 1] and I don't propose to go over again the blast, thermal and radiation data.

2 Thermal Radiation

The thermal output from a nuclear weapon is defined by:

$$Q = \frac{E\,W\,f\,T}{4\pi R^2}$$

Where Q is the total energy falling on a surface at a distance (slant range) R. When Q is in cal/cm^2
Then E = 10^{12} calories
W is the yield in kilotons
f is 1/3 for low airbursts
and R is in metres
(for SI units, 1 cal = 4.19 Joules and 1 Joule/mm^2 = 25 cal/cm^2 approx)

T is the transmissivity of the atmosphere and to take account of this causes some complications. Weather conditions in Northern Europe are very variable and do not necessarily conform with the conditions on which the data in DASA EM1 are based. If T is assumed to be unity, then we get a straight line on a log/log plot of Q versus range (see Figure 1). In the QSTAG, as in DASA EM1, T is calculated from an empirical relationship:

$$T = e^{-3.91\frac{R}{V}}\left(1 + 0.7\frac{R}{V}\right)$$

where V is the visibility.

Early this year Major C Pritchett (then attached at AWRE) continued a study started earlier by Mr R Rankin of D Sc 6, of data provided by the meteorological office of the visibility and cloud cover for a number of airfields in West Germany over a number of years. Snow cover data were also studied [Ref 3].

REFERENCES

1 Capabilities of Nuclear Weapons, DASA EM1 dated 1.1.68 (Confidential)

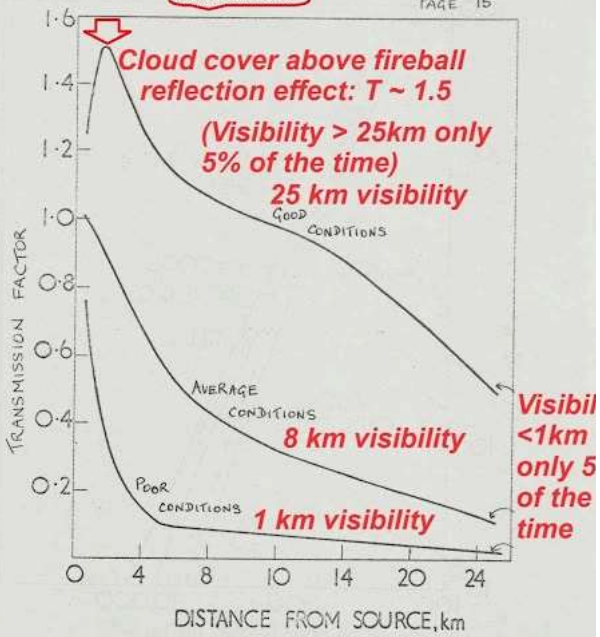
3 Thermal Transmission Factors for Use in Military Studies, Major C Pritchett, SMR Tech Memo No 1/70 ref: AWRE/ARMY/R2/4 dated June 1970 (Restricted)

4 G F Riley: Empirical Determination of Scattered Light Transport through the Lower Atmosphere. AFCRL-68-0256 dated May 1968

RESTRICTED

Riley's model of thermal transmissivity

AFCRL-68-0256 PAGE 15



VARIATION OF TRANSMISSION FACTOR WITH DISTANCE

FIGURE 2

RESTRICTED

UK AWRE Nuclear Weapons Effects Symposium - UK National Archives
DEFE 7/2401

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TABLE 3

DAMAGE RANGES AND SAFE DELIVERY DISTANCES

SURFACE SHIPS - 10 KT WEAPON

DEPTH OF BURST (FEET)	HORIZONTAL RANGE (YARDS)			
	SHOCK LEVEL			
	SEVERE	MODERATE	LIGHT	SAFE DELIVERY
100	200	300	450	900
250	350	500	800	1500
500	500	800	1200	2300
1000	800	1200	1800	3200
2000	1100	1600	2300	4300

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Page 30

SECRET

TABLE 4

SPREAD OF BASE SURGE FROM A 10 KT WEAPON (NO WIND)

DEPTH OF BURST (FEET)	RADIUS OF BASE SURGE (YARDS)		
	20 SECONDS	60 SECONDS	120 SECONDS
300	740	1700	2500
500	670	1600	2200
1000	570	1400	1700
2000	500	1200	1400

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Page 31

TABLE 5

DAMAGE RANGES AND SAFE DELIVERY DISTANCES

SUBMARINES - 10 kT WEAPON (BEAM EXPOSURE)

OPERATING DEPTH	DEPTH OF BURST (FEET)	DEPTH OF SUBMARINE (FEET)	HORIZONTAL RANGE (YARDS)			
			SHOCK LEVEL			SAFE DELIVERY
			SEVERE	MODERATE	LIGHT	
ALL VALUES	100	50	450	550	800	1200
		> 400	1000	2100	5000	10000
	250	50	700	850	1300	1900
		> 400	1000	2100	5000	10000
	500	50	900	1300	2000	3100
		> 400	1100	2200	5100	10000
	1000	50	1200	1800	2800	4300
		> 400	1300	2300	5100	10000
	2000	50	1400	2300	4000	6000
		≥ 400	1400	2300	5200	10000

MILITARY ASPECTS

Air Force Department - The Vulnerability of Strike Aircraft in a Nuclear War Environment

Wg Cdr J Potter (MOD(AIR))

Introduction

1 I would like to take the opportunity to say a few words on the RAF philosophy in assessing the vulnerability of strike aircraft to Nuclear Weapon effects.

2 Aircraft in flight close to a nuclear detonation would be subjected to blast, thermal and nuclear radiation and Electromagnetic Pulse effects, and the pilots could be blinded by the nuclear flash.

3 In a general nuclear war in Europe it is probable that our strike bases and control centre will be destroyed by enemy weapons at an early stage of hostilities, although we expect to recieve sufficient warning to launch our strike aircraft from their bases before this attack. If we assume that our aircraft have escaped the enemy missile strike on their bases we are primarily concerned with the environment through which our strike aircraft will have to fly to reach their targets. We believe that the greatest intensity of Nuclear Activity during the time our aircraft are making their penetration would be encountered in crossing the ground battle zone along the Communist land frontier, as strike aircraft are expected to be routed to avoid pre-planned allied strikes and likely enemy targets (Diagram 1).

4 The actual intensity will vary, dependent on where and when the penetration is made. The highest nuclear intensity is expected in the central zone. Consideration of the narrow slice of the battle zone in this area, through which a strike aircraft will penetrate, extending 20nm either side of the battle front and 10nm either side of the aircraft track, will allow the worst case to be assessed. The time in the zone would vary from 5-6 minutes, depending on the speed of the aircraft and up to 30 nuclear tactical ground or low airbursts might be expected within this zone during the time of crossing. This estimate is based on an AIR CENT assessment of the number of weapon strikes a pilot might see crossing the zone and further work in the United Kingdom. Thirty strikes would represent the maximum feasible rate of fire which would be unlikely to be sustained for long periods. It is considered that a more probable assessment of the sustained intensity of fire would be half the maximum feasible rate (15 strikes in 6 minutes).

5 The intensity of effects within this scenario are considerably affected by assessments of the yield of weapons used. A selection of yields between 1 and 100kt was made for use in a mathematical model designed to investigate the effect of the intensity of this environment on aircraft losses. Some larger weapons may be used but these are expected to fall outside the immediate battle area.

6 The effects associated with blast are the most significant as it is considered that a strike aircraft flying at low level will be severely damaged and incapable of flight if it is subjected to blast in excess of 4psi.

15 kt at 100 ft height of burst

FIG.5. Buffalo-1 precursor AG 104 1170 FT. 36 P.S.I.

FIG.7. Buffalo-1 precursor AG 108 1520 FT. 22·7 P.S.I.

FIG.8. Buffalo-1 precursor AG 109 1730 FT. 20·4 P.S.I.

FIG.9. Buffalo-1 near ideal AG 111 1960 FT. 15 P.S.I.

FIG.10. Buffalo-1 near ideal AG 112 2140 FT. 13·5 P.S.I.

Buffalo-1 precursor waveform development and fading
Ambient air: 22C, 998mb, 18% humidity

3 kt at 490 ft height of burst

FIG.21. Buffalo-3 precursor AG 405/1 740 FT. 24·7 P.S.I.

FIG.22. Buffalo-3 precursor AG 407 990 FT. 16·4 P.S.I.

FIG.23. Buffalo-3 precursor AG 408 1320 FT. 9·9 P.S.I.

FIG.24. Buffalo-3 near ideal AG 411 1750 FT. 8·9 P.S.I.

(Buffalo-3 ambient air: 24.1C, 998mb, 35% humidity)





10 kt at 100 ft height of burst

FIG.11. Buffalo-4 precursor AG 304 1140 FT. 32 P.S.I.

FIG.12. Buffalo-4 precursor AG 306 1290 FT. 28 P.S.I.

FIG.13. Buffalo-4 precursor AG 308 1480 FT. 24·4 P.S.I.

FIG.14. Buffalo-4 precursor AG 310 1680 FT. 17·8 P.S.I.

FIG.15. Buffalo-4 near ideal AG 311 1920 FT. 14·2 P.S.I.

Buffalo-4 ambient air: 13.1C, 994mb, 84% humidity

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REPORT No. T 37/58

OPERATION ANTLER

(32)

Target Response Group
(Group Leader Plans: E. R. Drake Seager)
(Group Leader Operations: Lt.Col. E. T. Wray, REME)

The Shielding from Initial Radiation

Afforded by Soil

Maj. D. B. B. Janisch, RA

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A.W.R.E.,
Aldermaston, Berks.

November, 1958

-44-

FIGURE 12 b ROUND 3.
PROTECTION FACTOR - DEPTH
FAST NEUTRONS.

PROTECTION FACTOR

KEY:-

>	TA 1	1410 FT
X	TA 2	1750 FT
o	TA 3	2000 FT
+	TA 4	2370 FT
△	TA 5	2695 FT
□	TA 6	3160 FT

-30-

FIGURE 10 a. ROUND 2
PROTECTION FACTOR - DEPTH
γ RADIATION.

PROTECTION FACTOR

DEPTH

KEY:-

•	BI 1	1348 FT
X	BI 2	1800 FT
o	BI 3	2100 FT
+	BI 4	2400 FT
△	BI 5	2850 FT

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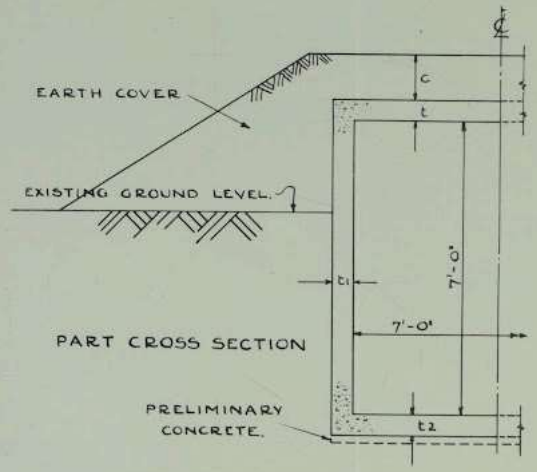
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The Safety-Cost Relationship for Certain Types of Surface and Trench Shelters

A Joint Home Office and
Ministry of Works Study

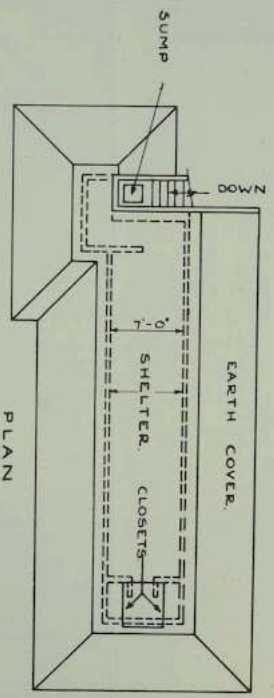
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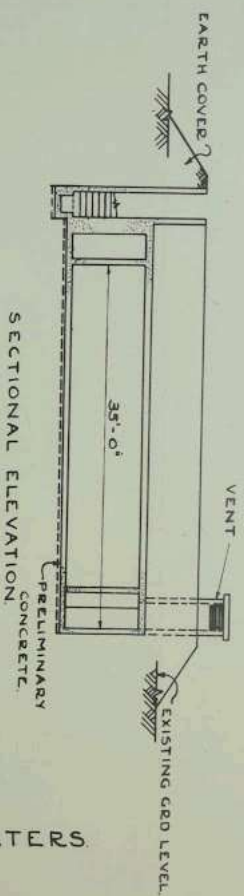


PART CROSS SECTION

CASE No.	BLAST LOAD	ROOF THICKNESS t (IN)	WALL THICKNESS t1 (IN)	FLOOR THICKNESS t2 (IN)	EARTH COVER 'C' FEET	WT. OF REINFORCEMENT PER FT. RUN OF SHELTER (LB)	TOTAL WT OF STEEL IN SHELTER (LB)
1	1400	7½	5	5	1·0	46·9	2110
	1000	6	"	"	"	41·3	1896
	500	5	"	"	"	35·6	1701
	250	"	"	"	"	33·0	1606
2	1400	7½	5½	5½	2·0	51·7	2367
	1000	6	5	5	"	51·3	2352
	500	5	"	"	"	47·9	2237
	250	"	"	"	"	"	"
3	1400	7½	6	6	3·0	55·2	2593
	1000	6	"	"	"	53·1	2523
	500	"	"	"	"	50·0	2413
	250	"	"	"	"	"	"
4	1400	7½	6½	6½	5·0	65·6	3115
	1000	6½	"	"	"	63·0	3025
	500	"	"	"	"	"	"
	250	"	"	"	"	"	"



PLAN

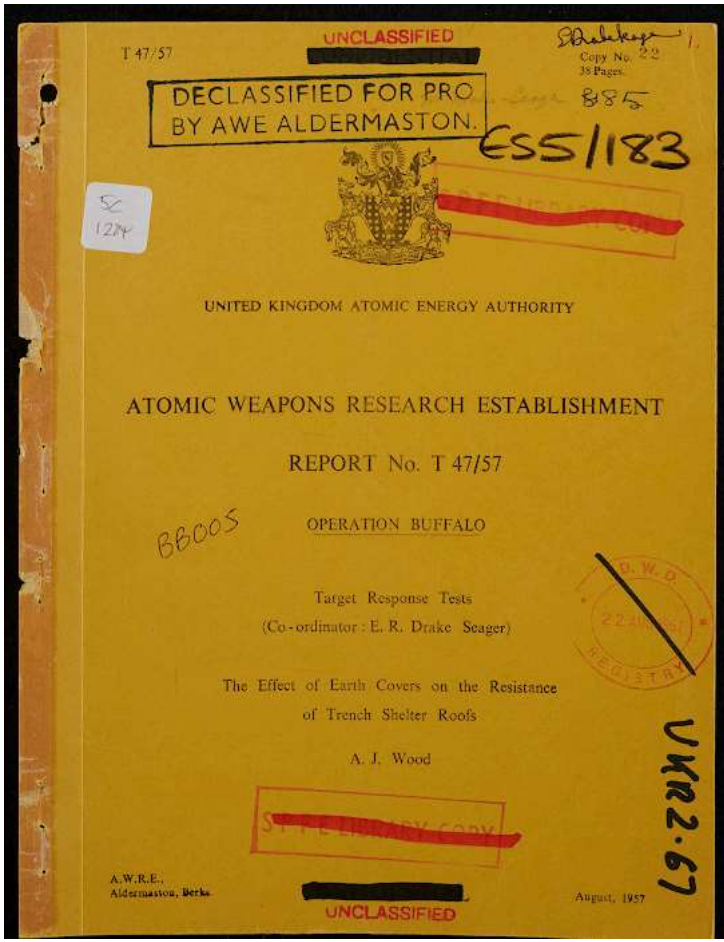


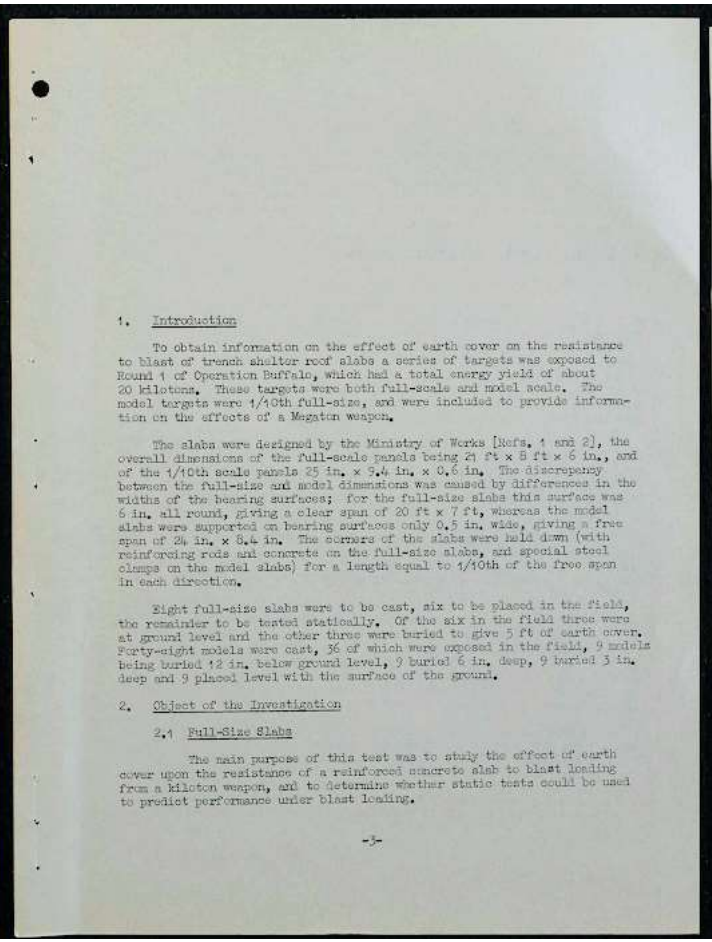
SECTIONAL ELEVATION

TRENCH SHELTERS

FIG. II.

(19908) 59





1. Introduction

To obtain information on the effect of earth cover on the resistance to blast of trench shelter roof slabs a series of targets was exposed to Round 1 of Operation Buffalo, which had a total energy yield of about 20 kilotons. These targets were both full-scale and model scale. The model targets were 1/10th full-size, and were included to provide information on the effects of a Megaton weapon.

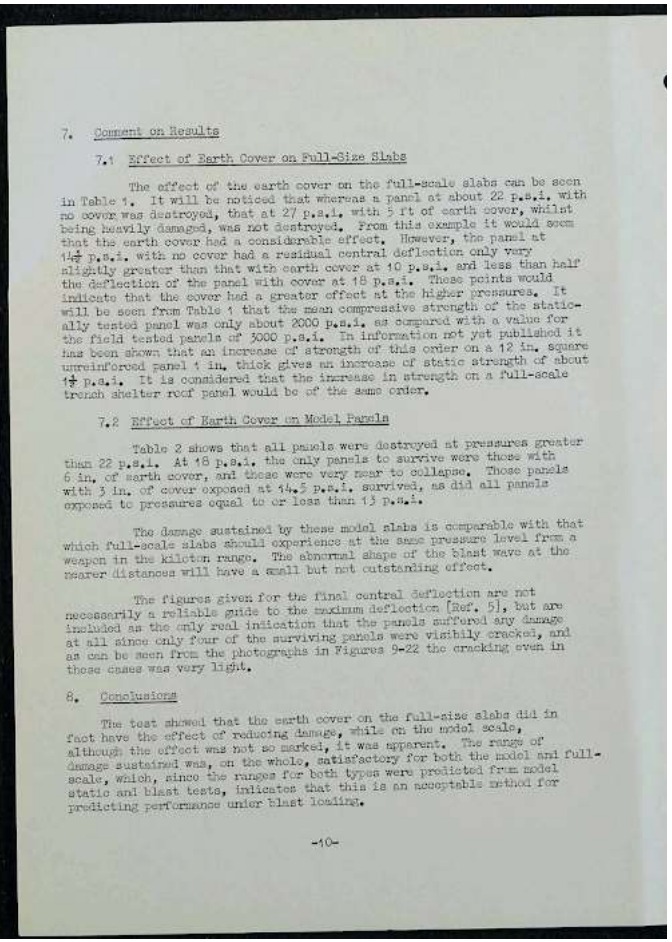
The slabs were designed by the Ministry of Works [Refs. 1 and 2], the overall dimensions of the full-scale panels being 21 ft × 8 ft × 6 in., and of the 1/10th scale panels 25 in. × 9.4 in. × 0.6 in. The discrepancy between the full-size and model dimensions was caused by differences in the widths of the bearing surfaces; for the full-size slabs this surface was 6 in. all round, giving a clear span of 20 ft × 7 ft, whereas the model slabs were supported on bearing surfaces only 0.5 in. wide, giving a free span of 24 in. × 8.4 in. The corners of the slabs were held down (with reinforcing rods and concrete on the full-size slabs, and special steel clamps on the model slabs) for a length equal to 1/10th of the free span in each direction.

Eight full-size slabs were to be cast, six to be placed in the field, the remainder to be tested statically. Of the six in the field three were at ground level and the other three were buried to give 3 ft of earth cover. Forty-eight models were cast, 36 of which were exposed in the field, 9 models being buried 12 in. below ground level, 9 buried 6 in. deep, 9 buried 3 in. deep and 9 placed level with the surface of the ground.

2. Object of the Investigation

2.1 Full-Size Slabs

The main purpose of this test was to study the effect of earth cover upon the resistance of a reinforced concrete slab to blast loading from a kiloton weapon, and to determine whether static tests could be used to predict performance under blast loading.



7. Comment on Results

7.1 Effect of Earth Cover on Full-Size Slabs

The effect of the earth cover on the full-scale slabs can be seen in Table 1. It will be noticed that whereas a panel at about 22 p.s.i. with no cover was destroyed, that at 27 p.s.i. with 3 ft of earth cover, whilst being heavily damaged, was not destroyed. From this example it would seem that the earth cover had a considerable effect. However, the panel at 14½ p.s.i. with no cover had a residual central deflection only very slightly greater than that with earth cover at 10 p.s.i. and less than half the deflection of the panel with cover at 18 p.s.i. These points would indicate that the cover had a greater effect at the higher pressures. It will be seen from Table 1 that the mean compressive strength of the statically tested panel was only about 2000 p.s.i. as compared with a value for the field tested panels of 3000 p.s.i. In information not yet published it has been shown that an increase of strength of this order on a 12 in. square unreinforced panel 1 in. thick gives an increase of static strength of about 1½ p.s.i. It is considered that the increase in strength on a full-scale trench shelter roof panel would be of the same order.

7.2 Effect of Earth Cover on Model Panels

Table 2 shows that all panels were destroyed at pressures greater than 22 p.s.i. At 18 p.s.i. the only panels to survive were those with 6 in. of earth cover, and these were very near to collapse. Those panels with 3 in. of cover exposed at 14.5 p.s.i. survived, as did all panels exposed to pressures equal to or less than 13 p.s.i.

The damage sustained by these model slabs is comparable with that which full-scale slabs should experience at the same pressure level from a weapon in the kiloton range. The abnormal shape of the blast wave at the nearer distances will have a small but not outstanding effect.

The figures given for the final central deflection are not necessarily a reliable guide to the maximum deflection [Ref. 5], but are included as the only real indication that the panels suffered any damage at all since only four of the surviving panels were visibly cracked, and as can be seen from the photographs in Figures 9-22 the cracking even in these cases was very light.

8. Conclusions

The test showed that the earth cover on the full-size slabs did in fact have the effect of reducing damage, while on the model scale, although the effect was not so marked, it was apparent. The range of damage sustained was, on the whole, satisfactory for both the model and full-scale, which, since the ranges for both types were predicted from model static and blast tests, indicates that this is an acceptable method for predicting performance under blast loading.

T 49/57
Downgraded April 1984.
V. McA.

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UNITED KINGDOM ATOMIC ENERGY AUTHORITY

UK true land surface burst Buffalo-2, Maralinga

ATOMIC WEAPONS RESEARCH ESTABLISHMENT

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REPORT No. T 49/57

6A 541

OPERATION BUFFALO

The Radiation Survey of Ground Deposited Radioactivity

J. J Rae

DECLASSIFIED FOR [redacted] BY AWE [redacted] LDERMAS
UK UNCLASSIFIED

R.E.S. ✓
INV. ✓
AUTHOR ✓
SUBJECT ✓

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[redacted] TIAL

A.W.R.E.,
Aldermaston, Berks.
August, 1957

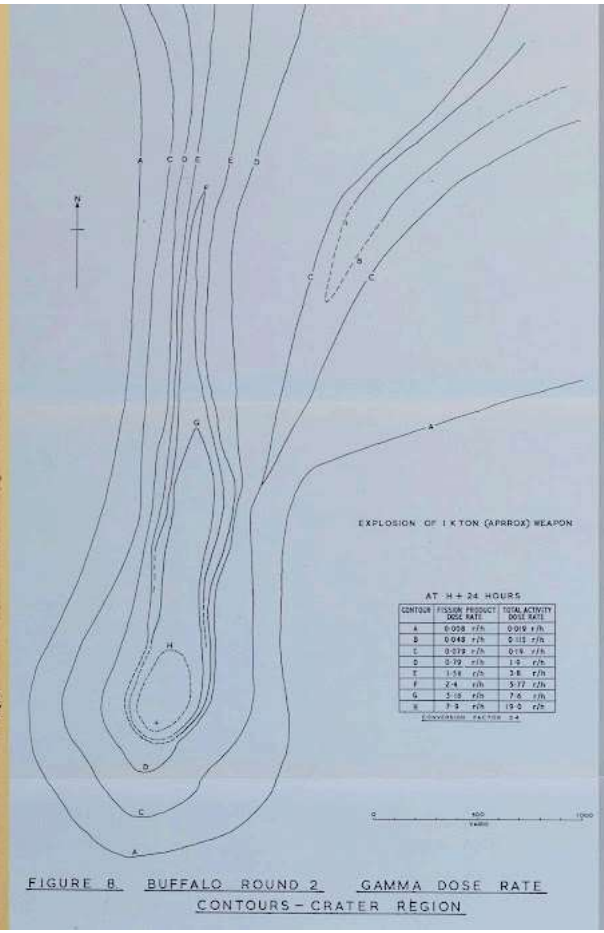
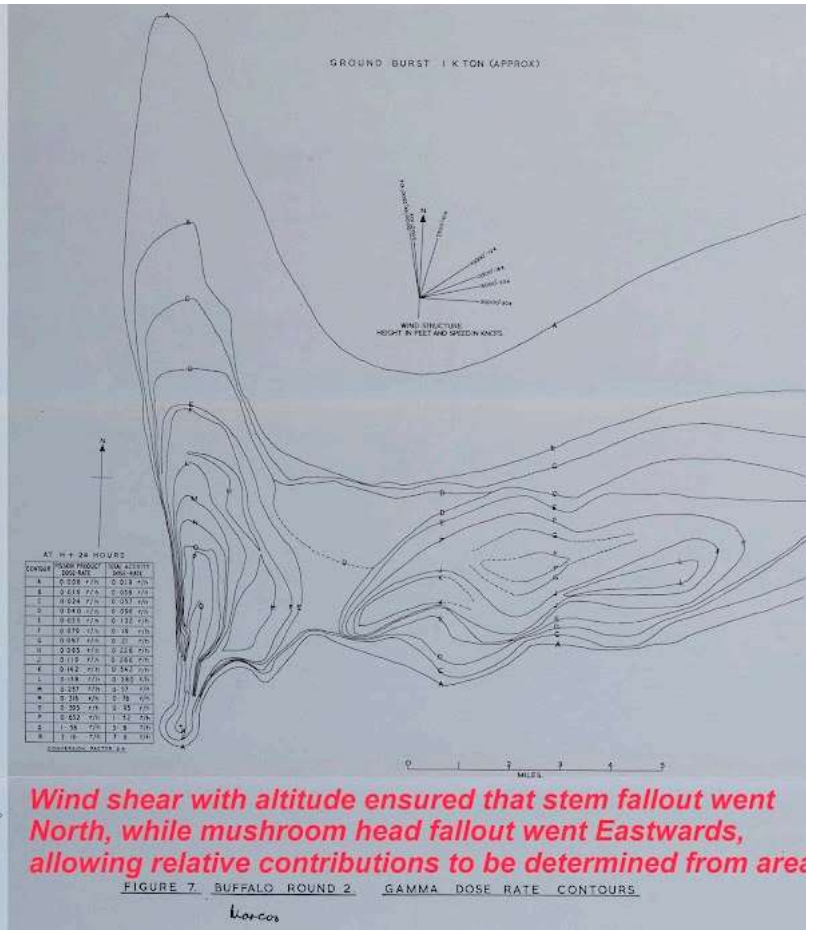


FIGURE 8. BUFFALO ROUND 2 GAMMA DOSE RATE CONTOURS – CRATER REGION



Wind shear with altitude ensured that stem fallout went North, while mushroom head fallout went Eastwards, allowing relative contributions to be determined from area

FIGURE 7. BUFFALO ROUND 2 GAMMA DOSE RATE CONTOURS

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CD/SA 101

Downwind fallout areas from ground-burst megaton explosions

1. Information available in 1958

(i) The U.S. publication "The Effects of Nuclear Weapons" paragraphs 9.71 to 9.73 *GLASSTONE, 1957 edition*

(ii) The U.S. publication "Capabilities of Atomic Weapons" fig. 4-4B, prepared by the Armed Forces Special Weapons Project; originally highly classified but now downgraded to "Confidential". This is at present under revision. *TM 23-200*

A comparison of the various figures for a few dose rates is given in Table 1.

Table 1

Areas of downwind contamination (sq. miles)

NOTE: at 1 Mt, TM 23-200 Capabilities gives half Glasstone's E.N.W. fallout areas for 300-3000 R/hr at 1 hr

Dose rate contour @ H + 1 r.p.h.	1 MT; 100% fission		10 MT; 100% fission	
	(i) E.N.W. & U.K. Nuclear Weapons	(iii) Capabilities	(i) E.N.W. & U.K. Nuclear Weapons	(iii) Capabilities
3000	54	27	540	650
1000	210	110	2100	1750
300	650	350	6500	5000
100	1500	1100	15000	18500
30	3300	3500	33500	43000

Difference

N.B. The Capabilities data is approximately summarised in the expression

$$AR = \frac{10^5}{P^{-1.2}}$$

NOTE: for 20 kt fission yield, Capabilities TM 23-200 Fig. 4-14A gives 80% of the fallout areas in E.N.W. 1957 for 10-3000 R/hr at 1 hr

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Where A = area in sq. miles
R = dose rate contour in r.p.h.
P = power of weapon in MT

(b) The fallout pattern *(Triffet's Tewa fallout pattern from WT-1317*

This is Fig. 7 on page 80 of the 1959 Congressional Hearings and is stated to be for a 5 MT explosion. No fission yield is actually given althou as the whole of the article in which this pattern appears is concerned with 50% fission yield weapon, it seems reasonable to assume that this pattern is also intended for a 50% fission yield. *(Redwing-Tewa, 5 Mt, 87% fissio*

The 25 r.p.h., 100 r.p.h. and 500 r.p.h. contours have been integrated and the areas compared with those from Capabilities in Table 3.

Table 3

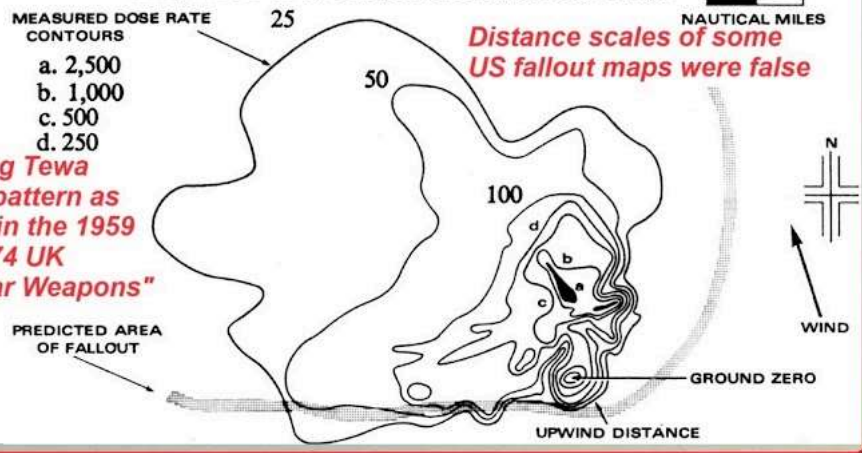
Areas of downwind contamination (sq. miles)

Comparison of U.S. fallout pattern with Capabilities

Dose rate contour @ H + 1 r.p.h.	5 MT: 50% fission	
	Redwing-Tewa Fig. 7. p.80 1959 Hearings	Capabilities
500	2,000	750
100	6,000	3,300
25	30,000	12,000

NOTE: when the Capabilities data is correcte from 50% to the real Tewa fissio yield of 87%, th REAL fallout ar are ~2 times Capabilities da i.e. equal to the 1957 E.N.W. da

Comparison of fallout prediction with test results



Distance scales of some US fallout maps were false

Redwing Tewa fallout pattern as shown in the 1959 and 1974 UK "Nuclear Weapons"

G. R. STANBURY

November 1960.

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Some recent information from the United States about fall-out from ground burst megaton weapons

1. Time of first arrival and duration

Data on these two aspects of fall-out have been given to us recently in two papers, one by Dr. Frank Shelton, Technical Director of the U.S. Armed Forces Special Weapons Projects entitled "Physical Aspects of Fall-out" and the other by E. A. Schuert of the U.S. Naval Radiological Defence Laboratory, in Report TR 139 - "A fall-out forecasting technique with results obtained at the Eniwetok Proving Ground".

On arrival times Dr. Shelton states "Fall-out from a detonation of the order of a megaton will begin to arrive on the ground over an area the order of the size of the visible cloud, almost like a blanket at about 15 to 20 minutes for a large yield surface burst on an island or presumably on land. Fall-out from a shot of the order of a megaton on a barge in water will begin to arrive at the surface at about 30-40 minutes".

N.B. For the land or island shots the average particle size is greater than for water shots, and therefore the particles fall more quickly.

"The above fall-out is exclusive of the vicinity of the crater and throw-out."

On fall-out duration, Dr. Shelton states "The radiation rate will build up on the ground under the cloud and reach a peak in about 100 minutes for a detonation of the order of a megaton".

With regard to any possible contamination hazard to people exposed in the open during this period, theoretical calculations and trials experience alike have shown that this is small compared with the hazard of the external gamma radiation from the surroundings and can in fact be made negligible provided that a few simple precautions (wearing of gloves, shaking or brushing down or removal of outer garments, and washing of the face) are taken at the first opportunity.

2. Upwind Contamination

The advice given by Scientific Advisers' Branch to the Working Party was based on information exchanged at a conference early in 1954 which gave a dose-rate of 10 r.p.h. at H + 1 at a distance 9 miles upwind of ground zero. A corresponding contour of 50 r.p.h. at H + 1 at 6 miles was quoted publicly by Govr. Val Peterson. Having in mind the date of the conference it is obvious that the only experience in the U.S. of megaton explosions at that time was of the one in November 1952.

Some time after the megaton explosion of March 1954 we were told that the U.S. were now convinced that contamination in the damaged area was heavier than this and it was for this reason that we suggested the inclusion of the "very heavy" contours in the chart which was circulated with the Working Party's Report and also suggested a modification of the script of the new H bomb film to indicate that the green line (3 r.p.h.) at H + 1 might be anywhere from 5 to 20 miles upwind of ground zero.

We are now confronted with the new U.S. book "The Effects of Nuclear Weapons", which seems to indicate that the contamination is greater still, an indication which must be examined in detail.

Using the data in Table 9.71 for a 1 MT explosion, and scaling up to a 10 MT explosion by means of the principles enumerated in paras. 9.74 to 9.77 we arrive at the rather startling result that the 10 r.p.h. contour at H + 1 extends 26 miles upwind (30 miles for the ground zero circle radius less 4 miles for the downwind displacement of the ground zero circle).

Firstly it is important to realise that in making this calculation it is necessary to extrapolate beyond the range of figures given in Table 9.71. This is because both distances and dose-rate values have to be scaled up according to the cube-root law, and in order to find the value corresponding to 10 r.p.h. for a 10 MT explosion we have first to extrapolate to the distance corresponding to a dose-rate of $\frac{10}{10}$ = 4.65 r.p.h. in the table

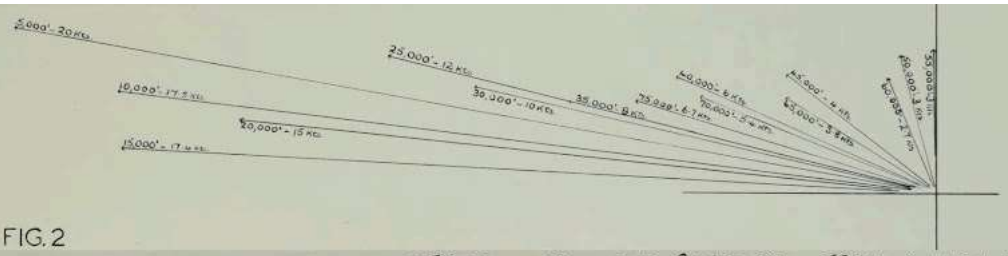


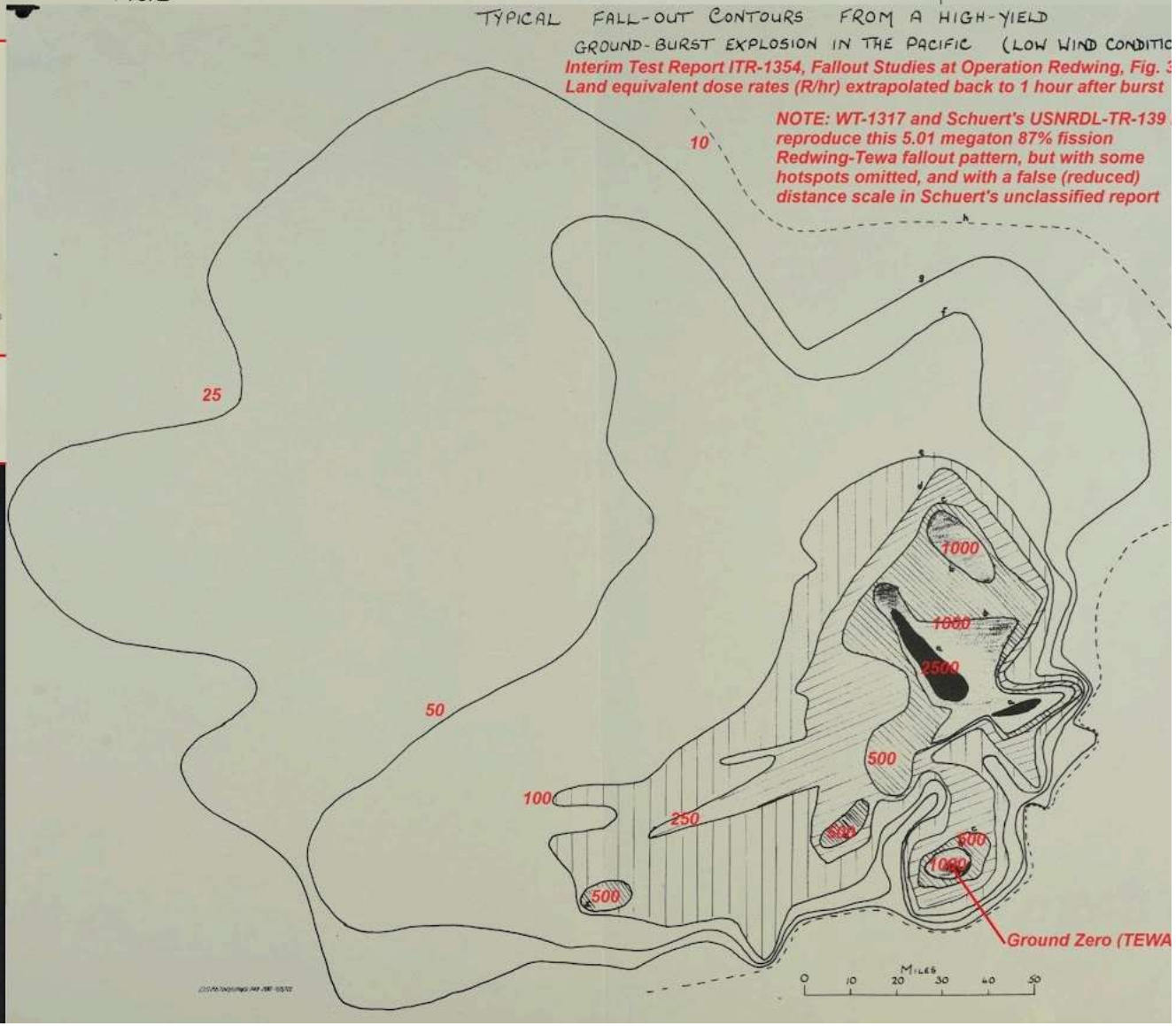
FIG. 2

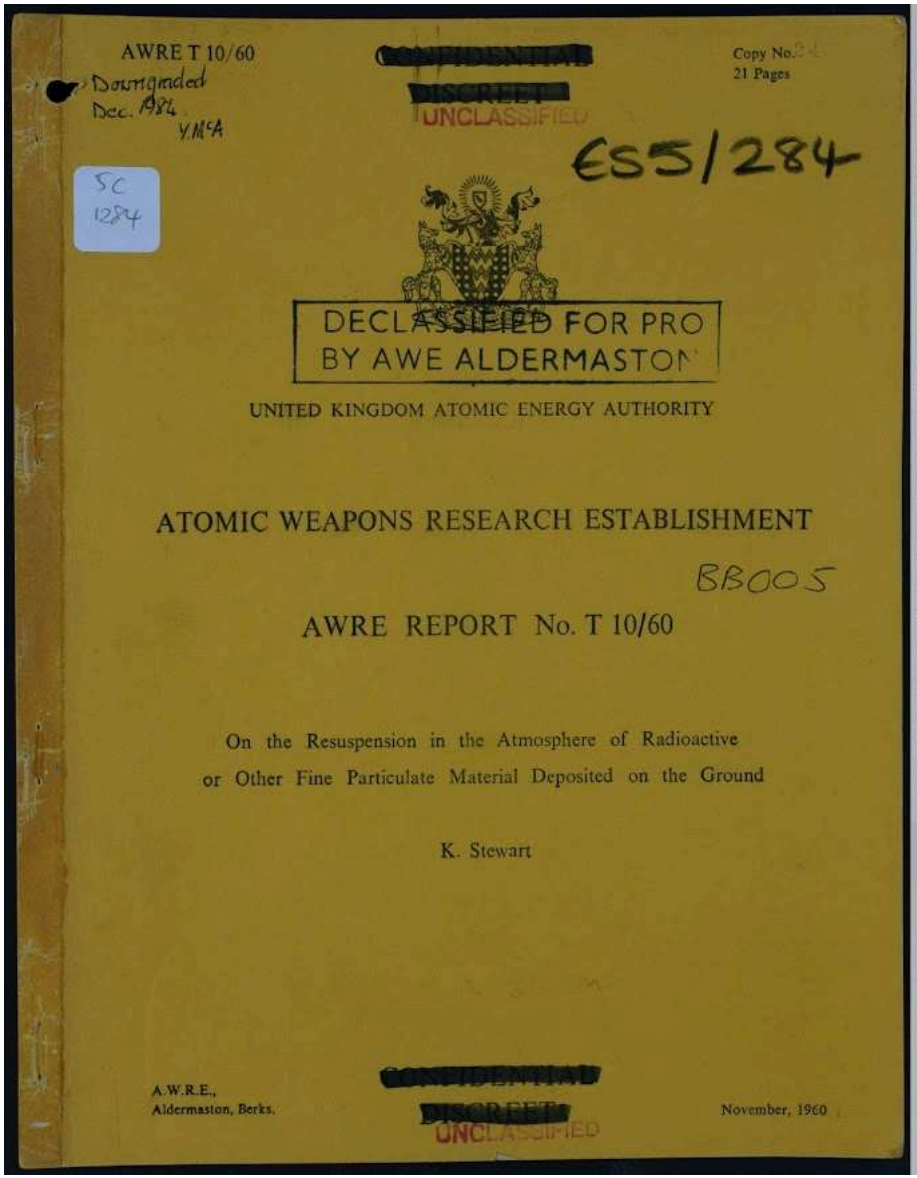
TYPICAL FALL-OUT CONTOURS FROM A HIGH-YIELD GROUND-BURST EXPLOSION IN THE PACIFIC (LOW WIND CONDITIO

Interim Test Report ITR-1354, Fallout Studies at Operation Redwing, Fig. 3

Land equivalent dose rates (R/hr) extrapolated back to 1 hour after burst

NOTE: WT-1317 and Schuert's USNRDL-TR-139 reproduce this 5.01 megaton 87% fission Redwing-Tewa fallout pattern, but with some hotspots omitted, and with a false (reduced) distance scale in Schuert's unclassified report





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AWRE REPORT No. T 10/60

On the Resuspension in the Atmosphere of Radioactive or Other Fine Particulate Material Deposited on the Ground

K. Stewart

A.W.R.E., Aldermaston, Berks.

[redacted]

DISCREET
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November, 1960

Report: AWRE-T-10/60
UK National Archives: ES 5/284

TABLE 1

Summary of Experimental Results on Resuspension of Activity

$K\ (m^{-1}) = \frac{\text{Airborne Concentration (Curies}}{\text{Contamination Level (Curies m}}$

Trial	General Circumstances of Measurement	Resuspension Factor	
		Range	Mean
Hurricane 25 kt ship	Sample of airborne material obtained without artificial disturbance of ground surface (12 results)	1×10^{-6} to 8×10^{-8} but 10 values lie between values 0.47×10^{-6} to 1.6×10^{-8}	1×10^{-8}
Totem 8-10 kt bursts on 100 ft towers	Random samples collected in region of T1 crater in absence of artificial disturbance of the ground (9 results)	1×10^{-6} to 1×10^{-8}	2×10^{-7} (0.8×10^{-7} if one result at 1×10^{-6} excluded)
	Surveys on C and D roads of grid - no artificial disturbance of ground surface (14 results, with 6 indefinite but measured values all $< 2 \times 10^{-8}$)	1.5×10^{-6} to 1×10^{-8}	2.5×10^{-7} (or 0.8×10^{-7} if one res at 1.5×10^{-6} is excluded
	Surveys on "Dingo" road - samples collected at back of Landrover in motion (21 results, 10 of which 2 were obtained over the tallboard) on the 4th and 7th days after the first test	On 4th day: 0.8×10^{-6} to 3×10^{-5} On 7th day: 0.6×10^{-6} to 4×10^{-6} On 7th day: 1.6 and 3.1×10^{-6} at tallboard position	1.4×10^{-5} 1.5×10^{-6} 2×10^{-6} at tallboard
	Survey of road to Site C (10 results) on 1st and 2nd days after the second test. Of these, 3 are indeterminate but less than 2×10^{-8} and only 2 are $> 1 \times 10^{-6}$	1×10^{-8} to 2×10^{-6}	4×10^{-7}
Buffalo	Sample collected during an instrument recovery sortie in which the sampler, a cascade impactor, was carried in the driving compartment of a Landrover for part of the time and was outside the stationary vehicle near the working party for the remainder Round 1 (H + 18 hr) 15 kt on 100 ft tower Round 2 (H + 5 hr) 1.5 kt true surface burst	2.5×10^{-5} but only about 10% of the activity was present on particles $< 6\ \mu$ diameter 6.4×10^{-5} but only about 20% of the activity was present on particles $< 6\ \mu$ diameter	
Civil Defence Trial at Falfield	Representative brick/plaster dust sample contaminated with I-131 and distributed on greater amount of dust and used during two realistic Civil Defence, bomb-site, recovery trials. 1. Enclosed Space 2. Open Area	Dust loading: 110 mg/m³ Dust loading: 10 mg/m³	2×10^{-4} 2×10^{-6}
Some representative results obtained during Health Physics surveillance of minor experimental trials at Maralinga	1. Uranium (1957) sample collected immediately downwind of crater at: 1 ft above ground 2 ft above ground 1 ft above ground (dust stirred up)		3×10^{-4} 1×10^{-5} 1×10^{-5} — Estimated that < 5% in hazardous size range
	2. Plutonium (1959 Vixen) sample collected at: 1 ft above ground: - dust created by vehicles - dust created by pedestrian	3×10^{-4}, 7×10^{-4} 1.5×10^{-6}, 3×10^{-4}	Particle size mainly 20 - 60 μ; estimated that < 1% in hazardous size range

Type of Particulate Material	Terminal or Deposition Velocity, m/sec	$K_{m^{-1}}$	Estimated Half-Life for Contaminated Zone (days) for:		
			K 1×10^{-4}	K 1×10^{-5}	K 1×10^{-6}
Very fine dust)	0.001	30 f	2.5	25	250
diameter ≤ 1 μ)	0.002	30 f	2.6	26	260
Fine dust up)	0.01	26 f	2.9	29	290
to about 20 μ)	0.02	23 f	3.4	34	340
Coarse dust,)	0.1	10 f	16	160	1600
fine sand ~ 50μ)	0.2	5 f	160	1600	16,000

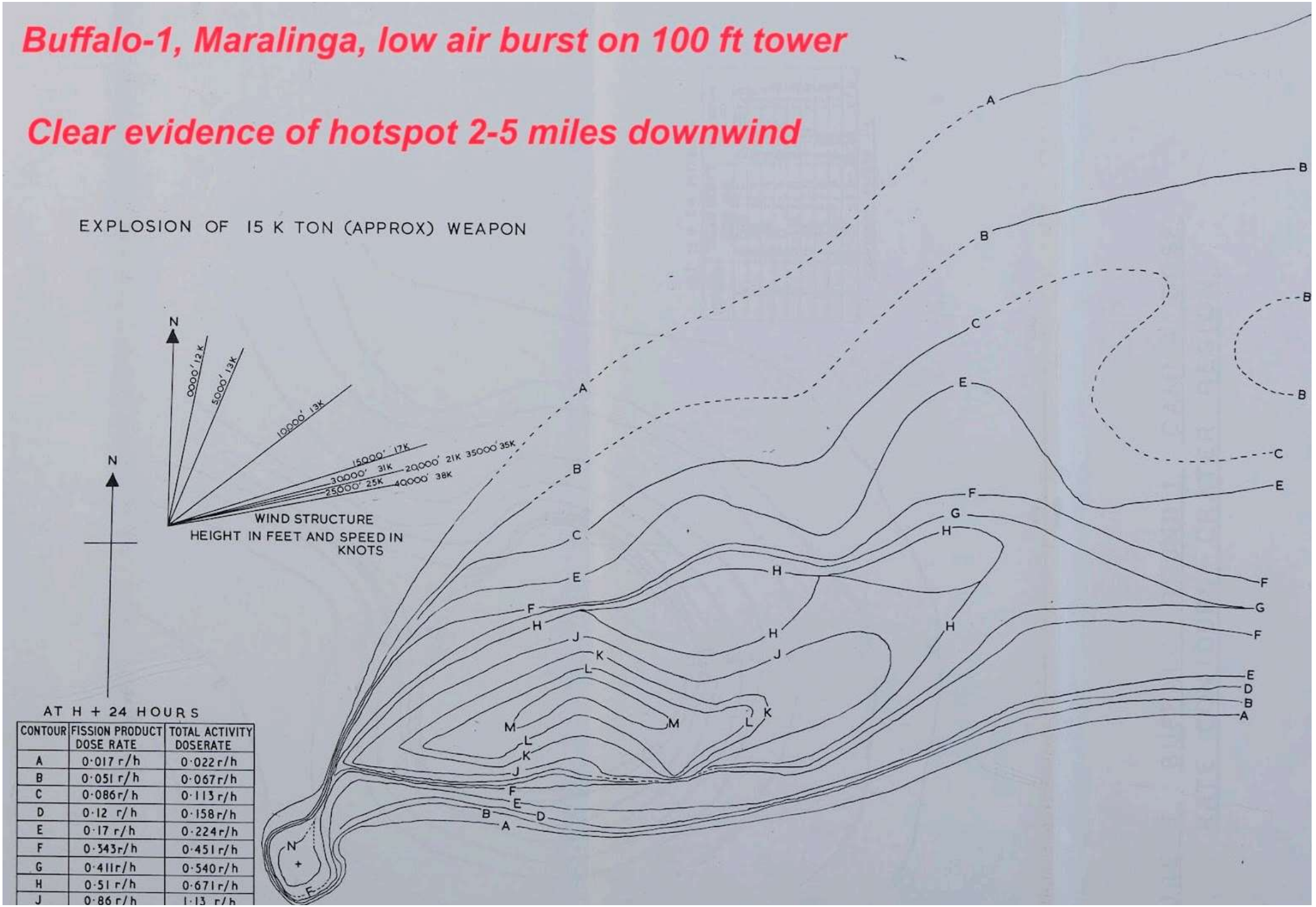
TABLE 4

Theoretical Estimation of Airborne Concentration Downwind of a Heavily Contaminated Area

Contamination at Point P, μg/m²	Airborne Concentration, μg/m³	Dose Inhaled in 1 Day ($f = 3 \times 10^{-6}$)
500	65 f	4.7×10^{-3}
160	25 f	1.8×10^{-3}
13	1.9 f	2.1×10^{-4}

Buffalo-1, Maralinga, low air burst on 100 ft tower

Clear evidence of hotspot 2-5 miles downwind



CONTOUR	FISSION PRODUCT DOSE RATE	TOTAL ACTIVITY DOSERATE
A	0·017 r/h	0·022 r/h
B	0·051 r/h	0·067 r/h
C	0·086 r/h	0·113 r/h
D	0·12 r/h	0·158 r/h
E	0·17 r/h	0·224 r/h
F	0·343 r/h	0·451 r/h
G	0·411 r/h	0·540 r/h
H	0·51 r/h	0·671 r/h
J	0·86 r/h	1·13 r/h

K	1·2 r/h	1·58 r/h
L	1·37 r/h	1·8 r/h
M	1·68 r/h	2·21 r/h
N	10·29 r/h	13·53 r/h

CONVERSION FACTOR 1·3

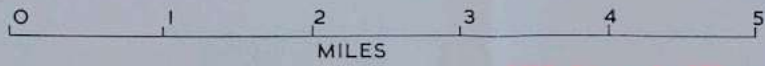


FIGURE 4. BUFFALO ROUND 1. GAMMA DOSE RATE CONTOURS.

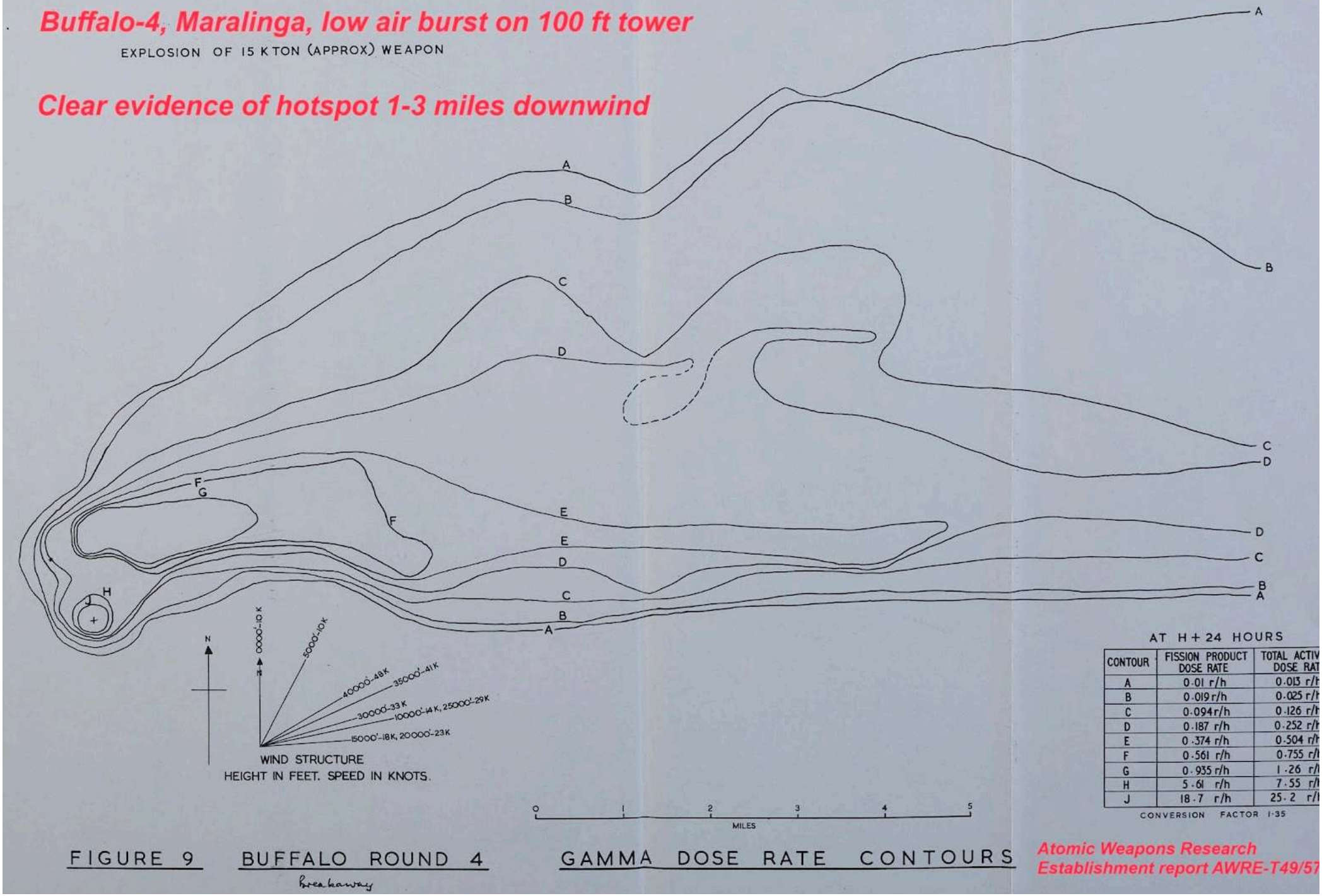
One Tree

UK Atomic Weapons Research Establishment Report: AWRE-T49/57

Buffalo-4, Maralinga, low air burst on 100 ft tower

EXPLOSION OF 15 K TON (APPROX) WEAPON

Clear evidence of hotspot 1-3 miles downwind



AT H + 24 HOURS

CONTOUR	FISSION PRODUCT DOSE RATE	TOTAL ACTIV DOSE RAT
A	0·01 r/h	0·013 r/h
B	0·019 r/h	0·025 r/h
C	0·094 r/h	0·126 r/h
D	0·187 r/h	0·252 r/h
E	0·374 r/h	0·504 r/h
F	0·561 r/h	0·755 r/h
G	0·935 r/h	1·26 r/h
H	5·61 r/h	7·55 r/h
J	18·7 r/h	25·2 r/h

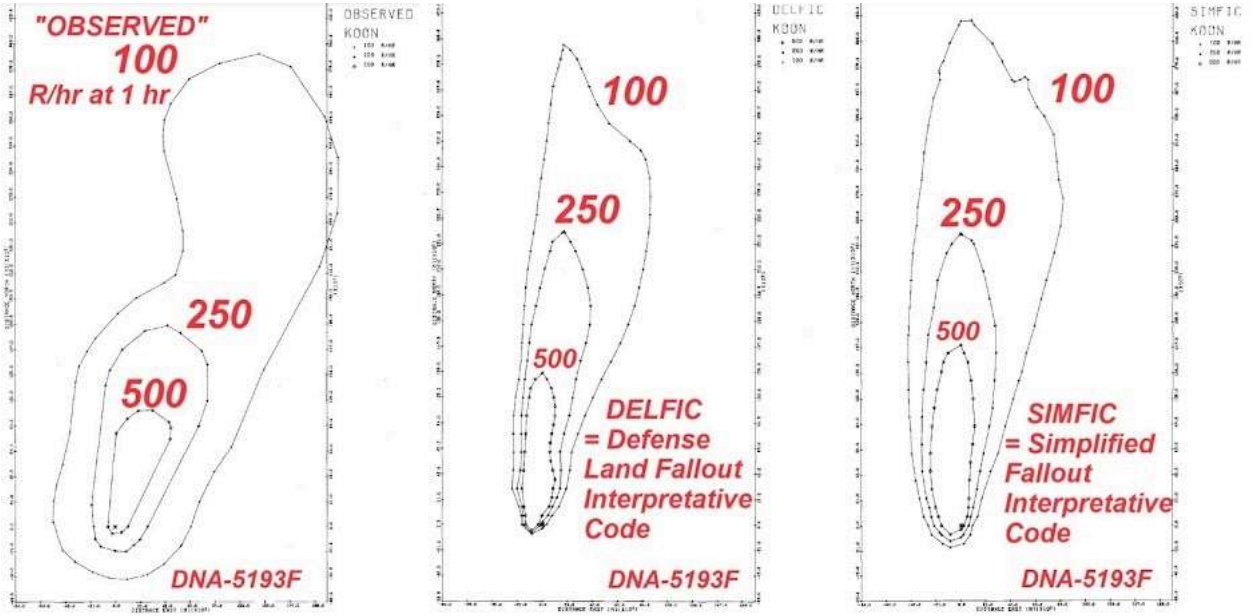
CONVERSION FACTOR 1·35

FIGURE 9 BUFFALO ROUND 4 GAMMA DOSE RATE CONTOURS

Breakaway

Atomic Weapons Research Establishment report AWRE-T49/57

Note: the DELFIC, SIMFIC and other computer predicted fallout area comparisons for the 110 kt Bikini Atoll Castle-Koon land surface burst nuclear test are false since the distance scale of Bikini Atoll is massively exaggerated on many maps, e.g. in the Secret January 1955 AFSWP "Fall-out Symposium", the Castle fallout report WT-915, and the fallout patterns compendium DASA-1251! The Western side of the Bikini Atoll reef is at 165.2 degrees East, while the most eastern island in the Bikini Atoll, Enyu, is at 165.567 degrees East: since there are 60 nautical miles per degree by definition, the width of Bikini Atoll is therefore (165.567-165.2)(60) = 22 nautical miles, approximately half the distance shown in the Castle-Koon fallout patterns. Since area is proportional to the square of the distance scale, this constitutes a serious exaggeration in fallout casualty calculations, before you get into the issue of the low energy (0.1-0.2 MeV) gamma rays from neutron induced Np239 and U237 in the fallout enhancing the protection factor of shelters (usually calculated assuming hard 1.17 and 1.33 MeV gamma rads from Co60), during the sheltering period of approximately 1-14 days after detonation.



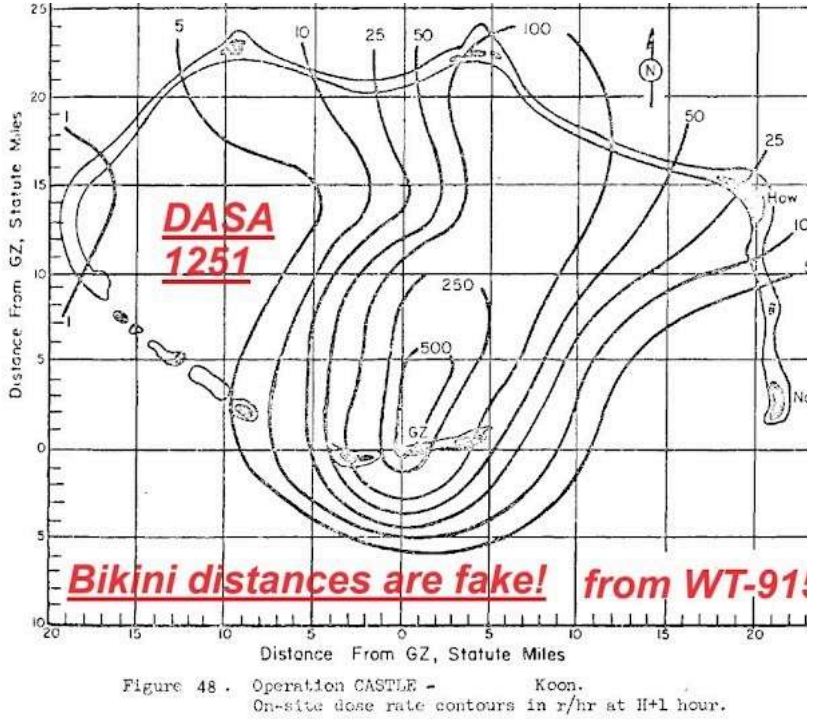


Figure 48. Operation CASTLE - Koon.
On-site dose rate contours in r/hr at H+1 hour.

"... most of the [100 kt fission, 110 kt total yield, Castle-] Koon pattern area was covered by an array of fallout collection stations, so this pattern is probably reasonably accurate."
- Hillyer G. Norment, "SIMFIC: A Simple, Efficient Fallout Model," DNA 5193F, page 29.

Observed/DELFIC/SIMFIC

Contour (Roentgen hr^{-1})	Area (km^2)	Hotline Length (km)
500	32.0/26.0/44.0	10.2/12.5/14.9
250	122/87.3/116	17.3/24.2/24.1
100	550/261/374	41.0/39.5/41.6

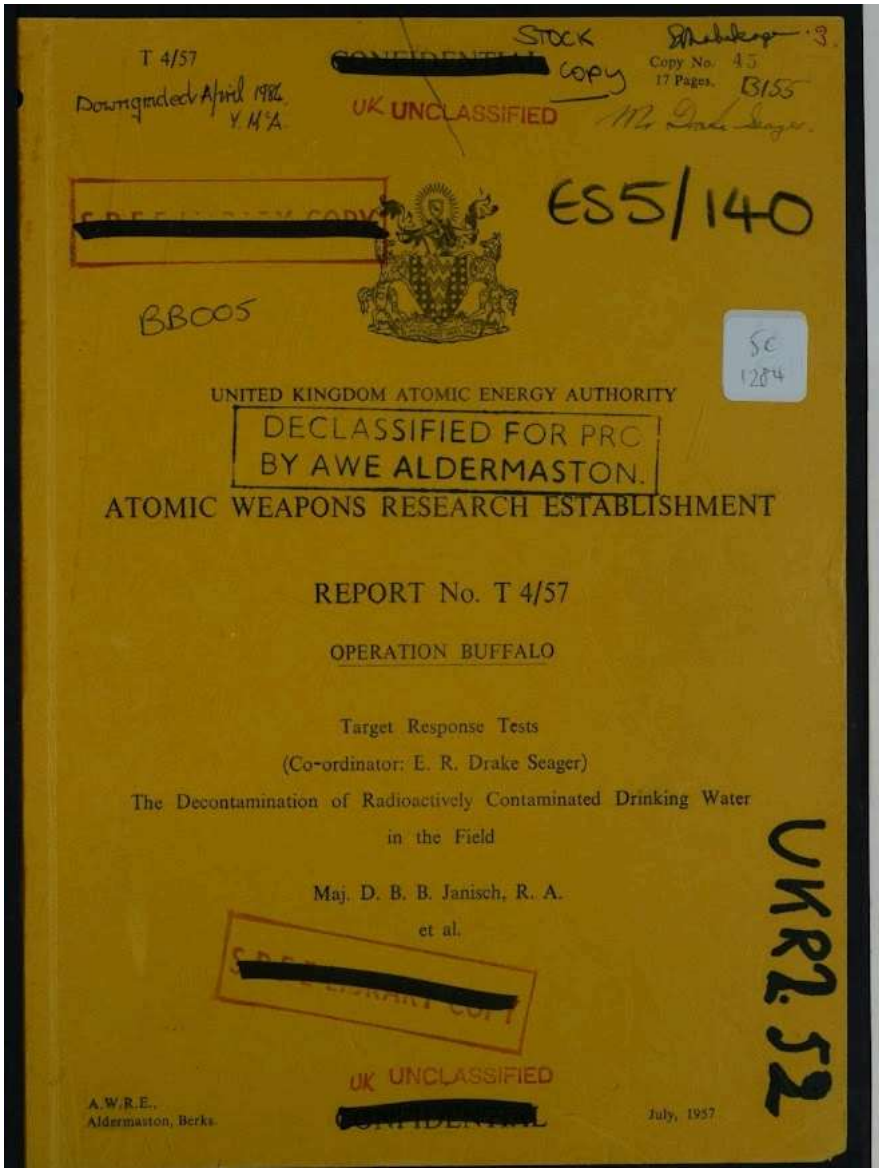
FAKE FAKE

Problem: the "probably reasonably accurate" Castle-Koon "observed" pattern is based on a MASSIVELY exaggerated map scale in Operation Castle fallout report WT-915 (also in DASA1251) Other surface tests were very low yield or else over open ocean!!

Above: FAKE distance scale of Bikini Atoll 110kt surface burst Castle-Koon fallout map: 500 R/hr contour is shown a 6 miles (10 km) long!

The Western side of the Bikini Atoll reef is 165.2 degrees East, while the most eastern island in the Bikini Atoll, Enyu, is at 165.56 degrees East: since there are 60 nautical miles per degree by definition, the width of Bikini Atoll is therefore (165.567-165.2)(60) 22 nautical miles. Since area is proportiona to the square of the distance scale, this constitutes a serious exaggeration in fallou casualty calculations, but is still ignored.

This debunks mainstream fallout models



T 4/57

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ATOMIC WEAPONS RESEARCH ESTABLISHMENT

REPORT No. T 4/57

OPERATION BUFFALO

Target Response Tests

(Co-ordinator: E. R. Drake Seager)

The Decontamination of Radioactively Contaminated Drinking Water in the Field

Maj. D. B. B. Janisch, R. A.

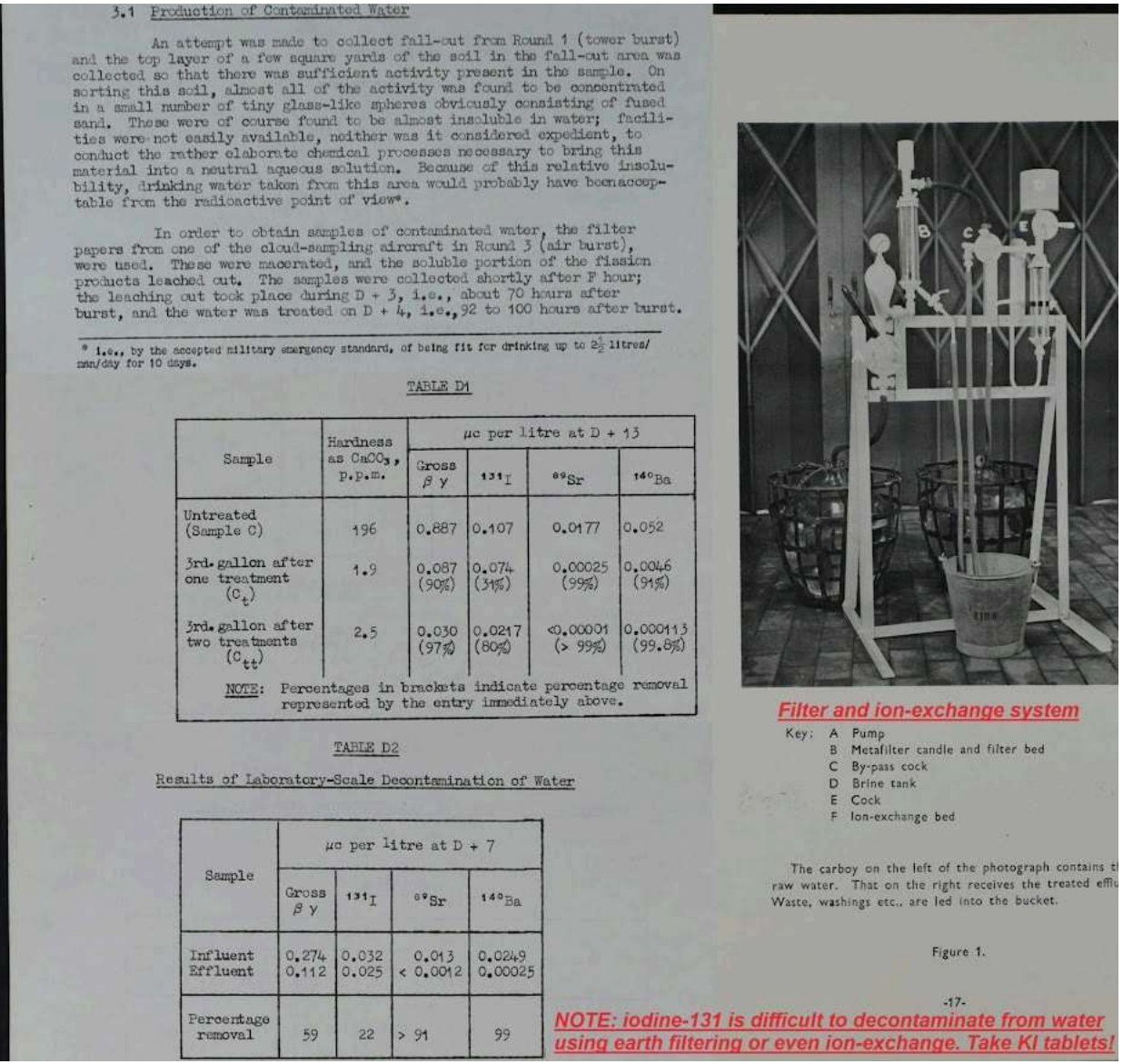
et al.

UK UNCLASSIFIED

A.W.R.E.
Aldermaston, Berks.

July, 1957

UKRL 52



3.1 Production of Contaminated Water

An attempt was made to collect fall-out from Round 1 (tower burst) and the top layer of a few square yards of the soil in the fall-out area was collected so that there was sufficient activity present in the sample. On sorting this soil, almost all of the activity was found to be concentrated in a small number of tiny glass-like spheres obviously consisting of fused sand. These were of course found to be almost insoluble in water; facilities were not easily available, neither was it considered expedient, to conduct the rather elaborate chemical processes necessary to bring this material into a neutral aqueous solution. Because of this relative insolubility, drinking water taken from this area would probably have been acceptable from the radioactive point of view*.

In order to obtain samples of contaminated water, the filter papers from one of the cloud-sampling aircraft in Round 3 (air burst), were used. These were macerated, and the soluble portion of the fission products leached out. The samples were collected shortly after F hour; the leaching out took place during D + 3, i.e., about 70 hours after burst, and the water was treated on D + 4, i.e., 92 to 100 hours after burst.

* i.e., by the accepted military emergency standard, of being fit for drinking up to 2½ litres/man/day for 10 days.

TABLE D1

Sample	Hardness as $CaCO_3$, p.p.m.	μc per litre at D + 13			
		Gross β γ	^{131}I	^{89}Sr	^{140}Ba
Untreated (Sample C)	196	0.887	0.107	0.0177	0.052
3rd. gallon after one treatment (C_t)	1.9	0.087 (90%)	0.074 (31%)	0.00025 (99%)	0.0046 (91%)
3rd. gallon after two treatments (C_{tt})	2.5	0.030 (97%)	0.0217 (80%)	<0.00001 (> 99%)	0.000113 (99.8%)

NOTE: Percentages in brackets indicate percentage removal represented by the entry immediately above.

TABLE D2

Results of Laboratory-Scale Decontamination of Water

Sample	μc per litre at D + 7			
	Gross β γ	^{131}I	^{89}Sr	^{140}Ba
Influent	0.274	0.032	0.013	0.0249
Effluent	0.112	0.025	< 0.0012	0.00025
Percentage removal	59	22	> 91	99

Filter and ion-exchange system

Key: A Pump
B Metafilter candle and filter bed
C By-pass cock
D Brine tank
E Cock
F Ion-exchange bed

The carboy on the left of the photograph contains t raw water. That on the right receives the treated effl Waste, washings etc., are led into the bucket.

Figure 1.

-17-

NOTE: iodine-131 is difficult to decontaminate from water using earth filtering or even ion-exchange. Take KI tablets!

"Since the nuclear stalemate became apparent, the Governments of East and West have adopted the policy which Mr Dulles calls 'brinkmanship'. This is a policy adopted from a sport ... called 'Chicken!' ... If one side is unwilling to risk global war, while the other side is willing to risk it, the side which is willing to run the risk will be victorious in all negotiations and will ultimately reduce the other side to complete impotence. 'Perhaps' - so the practical politician will argue - 'it might be ideally wise for the sane party to yield to the insane party in view of the dreadful nature of the alternative, but, whether wise or not, no proud nation will long acquiesce in such an ignominious role. **We are, therefore, faced, quite inevitably, with the choice between brinkmanship and surrender**." - Bertrand Russell, *Common Sense and Nuclear Warfare,* George Allen and Unwin, London, 1959, pp30-31.

Emphasis added. Note that Russell accepts lying about nuclear weapons just as gas weapons had been lied about in the 1920s-30s by "arms controllers" to start WWII, then he simply falls into the 1930s Cambridge Scientists Antiwar Group delusional propaganda fraud of assuming that any attempt to credibly deter fascism is immoral because it will automatically result in escalatory retaliation with Herman Goering's Luftwaffe drenching London with "overkill" by poison gas

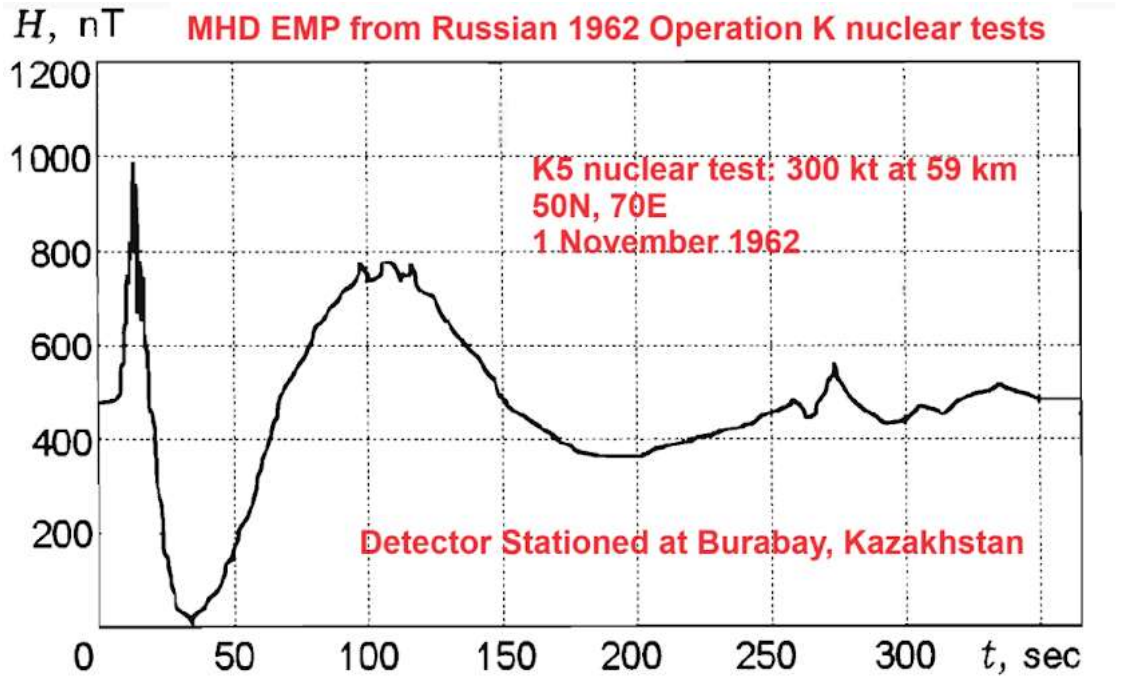
WMDs etc. In particular, he forgets that general disarmament pursued in the West until 1935 - when Baldwin suddenly announced that the Nazis had secretly produced a massive, unstoppable warmachine in two years - encouraged aggressors to first secretly rearm, then coerce and invade their neighbours while signing peace promises purely to buy more time for rearmament, until a world war resulted. Not exactly a great result for disarmament propaganda. So after obliterating what Reagan used to call (to the horror of commie "historians") the "true facts of history" from his mind, he advocates some compromise with the aggressors of the 30 September 1938 Munich Agreement peace-in-our-time sort, the historically proved sure fire way to really escalate a crisis into a major war by showing the green lamp to a loon to popular media acclaim and applause for a fairy tale utopian fantasy; just as the "principled" weak, rushed, imbecile withdrawl from Afghanistan in 2021 encouraged Putin to invade Ukraine in 2022, and also the green lamp for Hamas to invade Israel in 2023.

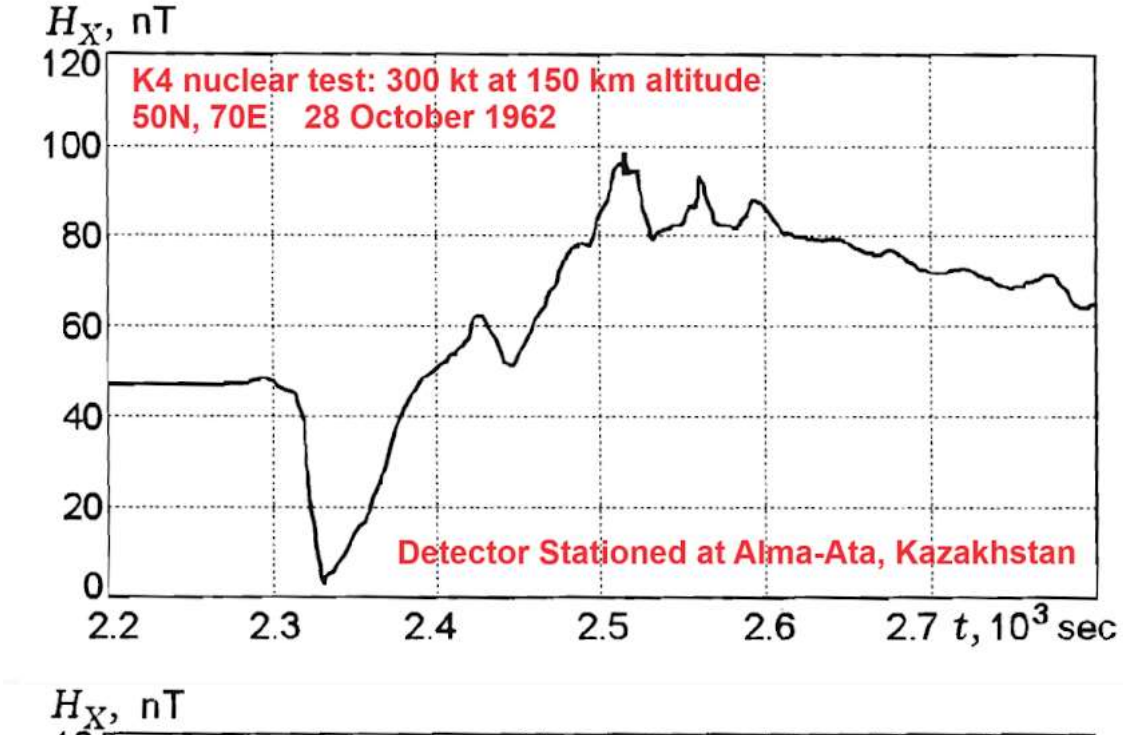
"... deterrence ... consists of threatening the enemy with thermonuclear retaliation should he act provocatively. ... If war is 'impossible', how can one threaten a possible aggressor with war? ... The danger, evoked by numerous critics, that such research will result in a sort of resigned expectation of the holocaust, seems a weak argument ... The classic theory of Clausewitz defines absolute victory in terms of disarmament of the enemy ... Today ... it will suffice to take away his means of retaliation to hold him at your mercy." - Raymond Aron, Introduction to Herman Kahn's 1962 *Thinking About the Unthinkable*, Weidenfield and Nicholson, London, pp. 9-12. (This is the commie support for arms control and disarmament has achieved, precisely the weakening of the West to take away credible deterrence.)

"75 years ago, white slavery was rampant in England. ... it could not be talked about openly in Victorian England, moral standards as to the subjects of discussion made it difficult to arouse the community to necessary action. ... Victorian standards, besides perpetuating the white slave trade, intensified the damage ... Social inhibitions which reinforce natural tendencies to avoid thinking about unpleasant subjects are hardly uncommon. ... But when our reluctance to consider danger brings danger nearer, repression has gone too far. In 1960, I published a book that attempted to direct attention to the possibility of a thermonuclear war ... people are willing to argue that it is immoral to think and even more immoral to write in detail about having to fight ... like those ancient kings who punished messengers who brought them bad news. That did not change the news; it simply slowed up its delivery. On occasion it meant that the kings were ill informed and, lacking truth, made serious errors in judgement and strategy. ... We cannot wish them away. Nor should we overestimate and assume the worst is inevitable. This leads only to defeatism, inadequate preparations (because they seem useless), and pressures toward either preventative war or undue accommodation." - Herman Kahn's 1962 *Thinking About the Unthinkable*, Weidenfield and Nicholson, London, pp. 17-19. (In the footnote on page 35, Kahn notes that original nuclear bullshitter, the 1950 creator of fake cobalt-60 doomsday bomb propaganda, Leo Szilard, was in the usual physics groupthink nutters club: *"Szilard is probably being too respectful of his scientific colleagues who also seem to indulge in ad hominem arguments - especially when they are out of their technical specialty."*)

"Ever since the catastropic and disillusioning experience of 1914-18, war has been unthinkable to most people in the West ... In December 1938, only 3 months after Munich, Lloyd's of London gave odds of 32 to 1 that there would be no war in 1939. On August 7, 1939, the London Daily Express reported the result of a poll of its European reporters. 10 out of 12 said, 'No war this year'. Hitler invaded Poland 3 weeks later." - Herman Kahn's 1962 *Thinking About the Unthinkable*, Weidenfield and Nicholson, London, p. 39. (But as the invasion of Ukraine in 2022 proved, even the label "war" is now "controversial": the aggressor now simply declares they are on a special operation of unifying people under one flag to ensure peace! So the reason why there is war in Ukraine is that Ukraine is resisting. If it waved a white flag, *as the entire arms control and disarmament lobby insists is the only sane response to a nuclear-armed aggressor,* there would be "peace," albeit on Russia's terms: that's why they disarmed Ukraine in 1994. "Peace propaganda" of "disarmers"! Free decent people prefer to fight tyranny. But as Kahn states on pp. 7-9:

"Some, most notably [CND's pseudo-historian of arms race lying] A. J. P. Taylor, have even said that Hitler was not like Hitler, that further appeasement [not an all-out arms race as was needed but repeatedly rejected by Baldwin and Chamberlain until far too late; see discussion of this fact which is still deliberately ignored or onfuscated by "historians" of the A. J. P. Taylor biased anti-deterrence left wing type, in Slessor's *The Central Blue,* quoted on this blog] would have prevented World War II ... If someone says to you, 'One of us has to be reasonable and it is not going to be me, so it has to be you', he has a very effective bargaining advantage, particularly if he is armed with thermonuclear bombs [and you have damn all civil defense, ABM, or credible tactical deterrent]. If he can convince you he is stark, staring mad and if he has enough destructive power ... deterrence alone will not work. You must then give in or accept the possibility of being annihilated ... in the





first instance if we fight and lose; in the second if we capitulate without fighting. ... We could still resist by other means ranging from passive resistance of the Gandhi type to the use of underground fighting and sabotage. All of these alternatives might be of doubtful effectiveness against [the Gulag system, KGB/FSB torture camps or Siberian salt mines of] a ruthless dictatorship."

Sometimes people complain that Hitler and the most destructive and costly war and only nuclear war of history, WWII, is given undue attention. But WWII is a good analogy to the danger precisely because of the lying WMD gas war propaganda-based disarmament of the West which allowed the war, because of the attacks by Hitler's fans on civil defense in the West to make even the token rearmament after 1935 ineffective as a credible deterrent, and because Hitler has mirrors in Alexander the Great, Attila the Hun, Ghengis Khan, Tamerlane, Napoleon and Stalin. Kahn explains on p. 173: "Because history has a way of being more imaginative and complex than even the most imaginative and intelligent analysts, historical examples often provide better scenarios than artificial ones, even though they may be no more directly applicable to current equipment, postures, and political situations than the fictional plot of the scenario. Recent history can be especially useful.")

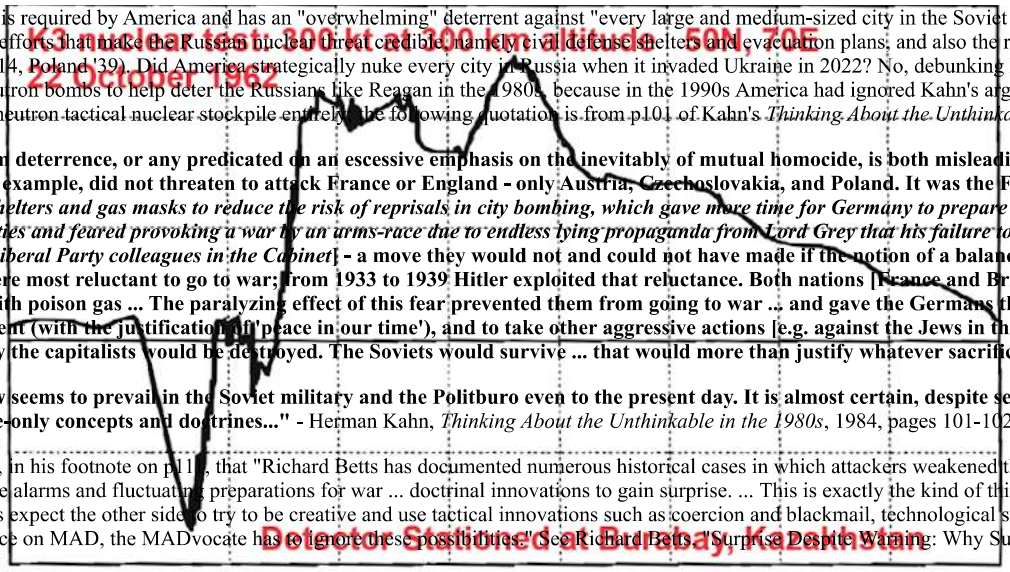
"One type of war resulting at least partly from deliberate calculation could occur in the process of escalation. For example, suppose the Soviets attacked Europe, relying upon our fear of their reprisal to deter a strategic attack by us; we might be deterred enough to pause, but we might evacuate our cities during this pause in the hope we could thereby convince the Soviets we meant business. If the Soviets did not back down, but continued their attack upon Europe, we might decide that we would be less badly off if we proceeded ... The damage we would receive in return would then be considerably reduced, compared with what we would have suffered had we not evacuated. We might well decide at such a time that we would be better off to attack the Soviets and accept a retalitory blow at our dispersed population, rather than let Europe be occupied, and so be forced to accept the penalty of living in the hostile and dangerous world that would follow." - Herman Kahn's 1962 *Thinking About the Unthinkable*, Weidenfield and Nicholson, London, pp. 51-2.

"We must recognise that the stability we want in a system is more than just stability against accidental war or even against an attack by the enemy. We also want stability against extreme provocation [e.g. invasion of allies, which then escalates as per invasion of Belgium 1914, or Poland 1939]." - Herman Kahn's 1962 *Thinking About the Unthinkable*, Weidenfield and Nicholson, London, p. 53(footnote).

Note: this 1962 book should not be confused with Kahn's 1984 "updated" *Thinking About the Unthinkable in the 1980s*, which omits the best material in the 1962 edition (in the same way that the 1977 edition of The Effects of Nuclear Weapons omits the entire civil defense chapter which was the one decent thing in the 1957 and 1962/4 editions!) and thus shows a reversion to the less readable and less helpful style of his 1960 *On Thermonuclear War*, which severely fragmented and jumbled up all the key arguments making it easy for critics to misquote or quote out of context. For example, Kahn's 1984 "updated" book starts on the first page of the first chapter with the correct assertion that Johnathan Schell's *Fate of the Earth* is nonsense, but doesn't say why it's nonsense, and you have to read through to the final chapter - pages 207-8 of chapter 10 - to find Kahn writing in the most vague way possible, without a single specific example, that Schell is wrong because of "substantive inadequacies and inaccuracies", without listing a single example such as Schell's lying that the 1954 Bravo nuclear test blinded everyone well beyond the range of Rongelap, and that it was impossible to easily shield the radiation from the fallout or evacuate the area until it decays, which Schell falsely attributed to Glasstone and Dolan's nonsense in the 1977 *Effects of Nuclear Weapons*! Kahn eventually in the footnote on page 208 refers readers to an out-of-print article for facts: "These criticisms are elaborated in my review of The Fate of the Earth, see 'Refusing to Think About the Unthinkable', Fortune, June 28, 1982, pp. 113-6. Kahn does the same for civil defense in the 1984 book, referring in such general, imprecise and vague terms to Russian civil defence, with no specific data, that it is a waste of time, apart possibly one half-baked sentence on page 177: "Variations in the total megatonnage, somewhat surprisingly, do not seem to affect the toll nearly as much as variations in the targetting or the type of weapon bursts." Kahn on page 71 quotes an exchange between himself and Senator Proxmire during the US Congressional Hearings of the Joint Committee on Defense Production, *Civil preparedness and limited nuclear war* where on page 55 of the hearings, Senator Proxmire alleges America would escalate a limited conflict to an all-out war because: **"The strategic value and military value of destroying cities in the Soviet Union would be very great."** Kahn responded: "No American President is likely to do that, no matter what the provocation." *Nuclear war will be limited, according to Herman Kahn's analysis, despite the bullshit fron nutters to the contrary.*

Kahn on page 101 of *Thinking About the Unthinkable in the 1980s* correctly and accurately condemns President Carter's 1979 State of the Union Address, which claimed falsely that just a single American nuclear

submarine is required by America and has an "overwhelming" deterrent against "every large and medium-sized city in the Soviet Union". Carter ignored Russian retaliation on cities if you bomb theirs: America has avoided the intense Russian protection efforts that make the Russian nuclear threat credible, namely civil defense shelters and evacuation plans; and also the realpolitik of deterrence of world wars, which so far have only been triggered due to invasions of third parties (Belgium '14, Poland '39). Did America strategically nuke every city in Russia when it invaded Ukraine in 2022? No, debunking Proxmire and the entire Western pro-Russian "automatic escalation" propaganda lobby, and it didn't even have tactical neutron bombs to help deter the Russians like Reagan in the 1980s, because in the 1990s America had ignored Kahn's argument, and went in for MINIMAL deterrence of the least credible sort (abolishing the invasion-deterring dedicated neutron tactical nuclear stockpile entirely). The following quotation is from p101 of Kahn's *Thinking About the Unthinkable in the 1980s*):



"Minimum deterrence, or any predicated on an escessive emphasis on the inevitably of mutual homocide, is both misleading and dangerous. ... MAD principles can promote provocation - e.g. Munich-type blackmail on an ally. Hitler, for example, did not threaten to attack France or England - only Austria, Czechoslovakia, and Poland. It was the French and the British who finally had to threaten all-out war [*they could only do this after rearmament and building shelters and gas masks to reduce the risk of reprisals in city bombing, which gave more time for Germany to prepare since it was rearming faster than France and Britain which still desperately counted on appeasement and peace treaties and feared provoking a war by an arms-race due to endless lying propaganda from Lord Grey that his failure to deter war in 1914 had been due to an arms-race rather than the incompetence of the procrastination of his anti-war Liberal Party colleagues in the Cabinet*] - a move they would not and could not have made if the notion of a balance of terror between themselves and Germany had been completely accepted. As it was, the British and French were most reluctant to go to war; from 1933 to 1939 Hitler exploited that reluctance. Both nations [France and Britain] were terrified by the so-called 'knockout blow', a German maneuver that would blanket their capitals with poison gas ... The paralyzing effect of this fear prevented them from going to war ... and gave the Germans the freedom to march into the Ruhr, to form the Anschluss with Austria, to force the humiliating Munich appeasement (with the justification of 'peace in our time'), and to take other aggressive actions [e.g. against the Jews in the Nuremberg Laws, Kristallnacht, etc.] ... If the USSR were sufficiently prepared in the event a war did occur, only the capitalists would be destroyed. The Soviets would survive ... that would more than justify whatever sacrifice and destruction had taken place.

"This view seems to prevail in the Soviet military and the Politburo even to the present day. It is almost certain, despite several public denials, that Soviet military preparations are based on war-fighting, rather than on deterrence-only concepts and doctrines..." - Herman Kahn, *Thinking About the Unthinkable in the 1980s*, 1984, pages 101-102.

Kahn adds, in his footnote on p101, that "Richard Betts has documented numerous historical cases in which attackers weakened their opponents defenses through the employment of unanticipated tactics. These include: rapid changes in tactics per se, false alarms and fluctuating preparations for war ... doctrinal innovations to gain surprise. ... This is exactly the kind of thing which is likely to surprise those who subscribe to MAD theories. Those who see a need for war-fighting capabilities expect the other side to try to be creative and use tactical innovations such as coercion and blackmail, technological surprises, or clever tactics on 'leverage' targets, such as command and control installations. If he is to adhere to a total reliance on MAD, the MADvocate has to ignore these possibilities." (See Richard Betts, "Surprise Despite Warning: Why Sudden Attacks Succeed", *Political Science Quarterly*, Winter 1980-81, pp. 551-572.)

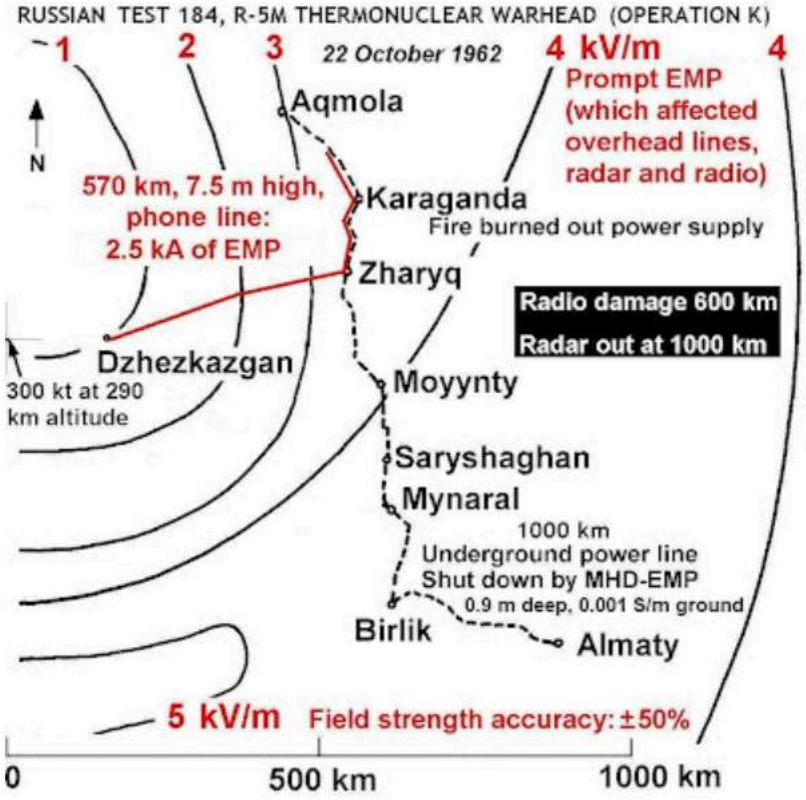
Compare two situations: (1) Putin explodes a 50 megaton nuclear "test" of the warhead for his new nuclear reactor-powered torpedo, Poseidon, a revamped 1961 Tsar Bomba, or detonates a high-altitude nuclear EMP "test" over neutral waters but within the thousands of miles range of USA or UK territory; (2) Putin invades Poland using purely conventional weapons. **Our point here is that both nuclear AND conventional weapons** trigger nuclear threats and the risk of nuclear escalation, as indeed they have done (for Putin's nuclear threats scroll down to videos with translations below). So the fashionable CND style concept that only nuclear weapons can trigger nuclear escalation is bullshit, and is designed to help Russia start and win WWIII to produce a world government, by getting us to undertake further unilateral (not multilateral) disarmament, just as evolved in the 1930s, setting the scene for WWII. Japan for example did not have nuclear weapons in August 1945, yet triggered not just tactical nuclear war (both cities had some military bases and munitions factories, as well as enormous numbers of civilians), and the decision to attack cities rather than just "test" weapons above Tokyo bay as Teller demanded but Oppenheimer rejected (for maximum impact with a very small supply of nuclear weapons) showed some strategic nuclear war thinking. Truman was escalating to try to shock Japan into rapid surrender emotionally (many cities in Japan had already been burned out in conventional incendiary air raids, and the two nuclear attacks while horrible for civilians in those cities contributed only a fraction of the millions killed in WWII, despite anti-nuclear propaganda lies to the contrary). Truman's approach escalating to win is the opposite of the "Minimax game theory" (von Neumann's maths and Thomas Schelling's propaganda) gradual escalation approach that's currently the basis of nuclear deterrence planning despite its failure wherever it has been tried (Vietnam, Afghanistan, etc). Gradual escalation is supposed to minimise the maximum possible risk (hence "minimax" name), but it guarantees failure in the real world (unlike rule abided games) by maximising the build up of resentment. E.g. Schelling/Minimax say that if you *gradually* napalm civilians day after day (because they are the unprotected human shields used by terrorists/insurgents; the Vietcong are hiding in underground tunnels, exactly like Hamas today, and the Putin regime's metro 2 shelter tunnels under Russia) you somehow "punish the enemy" (although they don't give a toss about the lives of kids which is why you're fighting them!) and force them to negotiate for peace in good faith, then you can pose for photos with them sharing a glass of champagne and there is "world peace". That's a popular fairy tale, like Marxist mythology.

Once you grasp this fact, that nuclear weapons have been and will again be "used" explosively without automatic escalation, for example provocative testing as per the 1961 Russian 50 megaton bomb test, or the 1962 high altitude EMP bursts, you should be able to grasp the fact that the "escalation" deception used to dismiss civil defense and tactical nuclear deterrence against limited nuclear war, is fake news from Russian fellow-travellers like Corbyn. Once you assign a non-unity probability to "escalation", you're into conventional war territory: if you fight a conventional war, it can "escalate" to nuclear war as on 6 August 1945. Japan did not avoid nuclear attack by not having nuclear weapons on 6 August 1945. If it had nuclear weapons ready to be delivered, a very persuasive argument could be made that unless Truman wanted to invite retaliation, World War II would have remained strategically non-nuclear: no net strategic advantage would have been achieved by nuclear city bombing so only war-ending tactical nuclear threats could have prevailed in practice. But try explaining this to the groupthink pseudosocialist bigoted mass murderers who permeate fake physics with crap; it's no easier to explain to them the ***origins of particle masses*** *or even* ***dark energy/gravitation;*** *in both cases groupthink lying hogwash persists because statements of proved facts are hated and rejected if them debunk religious style fairy tales the mass media loves. There were plenty of people warning that mass media gas war fear mongering was disguised Nazi supporting propaganda in the 1930s, but the public listened to that crap then just as it accepted the "eugenics" (anti-diversity evolution crap of Sir Galton, cousin of Darwin) basis for Hitler's Mein Kampf without question, just as they accepted the lying propaganda from the UK "Cambridge Scientists Anti-War Group" which like CND and all other arms control and disarmament lobbies supporting terrorist states today, did more than even Hitler to deliberately lay the foundations for the Holocaust and World War II, while never being criticised in the UK media!* Thus, it's surely time for people to oppose evil lying on civil defence to save lives in all disasters from storms to conventional war, to collateral damage risks in nuclear terrorism by mad enemies. At some point, the majority has to decide to either defend itself honestly and decently against barbarism, or be consumed by it as a price for believing bullshit. It's time for decent people to oppose lying evil regarding the necessity to have credible tactical (not incredible strategic) nuclear weapons, as Oppenheimer called for in his 1951 speech, to deter invasions.

Democracy can't function when secrecy is used to deliberately cover-up vital data from viewing by Joe Public. Secrecy doesn't protect you from enemies who independently develop weapons in secret, or who spy from inside your laboratories:

"The United States and Great Britain resumed testing in 1962, and we spared no effort trying to find out what they were up to. I attended several meetings on that subject. An episode related to those meetings comes to mind ... Once we were shown photographs of some documents ... the photographer had been rushed. Mixed in with the photocopies was a single, terribly crumpled original. I innocently asked why, and was told that it had been concealed in panties. Another time ... questions were asked along the following lines: What data about American weapons would be most useful for your work and for planning military technology in general?"

- Andrei Sakharov, Memoirs, Hutchinson, London, 1990, pp225-6.



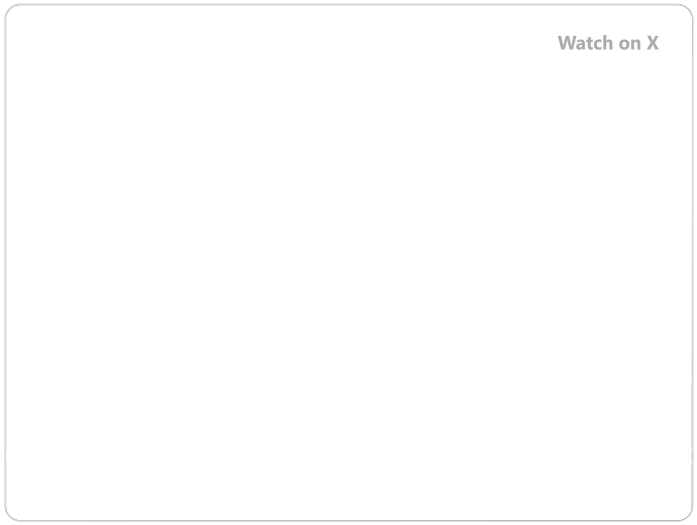
Source:
https://glasstone.blogspot.com/2009/02/how-emp-turned-off-1-3-of-streetlamps.html

Above: *USSR Test '184' on 22 October 1962, 'Operation K' (ABM System A proof tests) 300-kt burst at 290-km altitude near Dzhezkazgan. Prompt gamma ray-produced EMP induced a current of 2,500 amps measured by spark gaps in a 570-km stretch of 500 ohm impedance overhead telephone line to Zharyq, blowing all the protective fuses. The late-time MHD-EMP was of low enough frequency to enable it to penetrate the 90 cm into the ground, overloading a shallow buried lead and steel tape-protected 1,000-km long power cable between Aqmola and Almaty, firing circuit breakers and setting the Karaganda power plant on fire.*

Anton Gerashchenko
@Gerashchenko_en · **Follow**

Nuclear saber-rattling from Russian propagandists. They think tactical nuclear weapons aren't enough, and strategic ones should be used.

Russia has been very active with its nuclear rhetoric recently.



5:34 PM · Sep 29, 2023

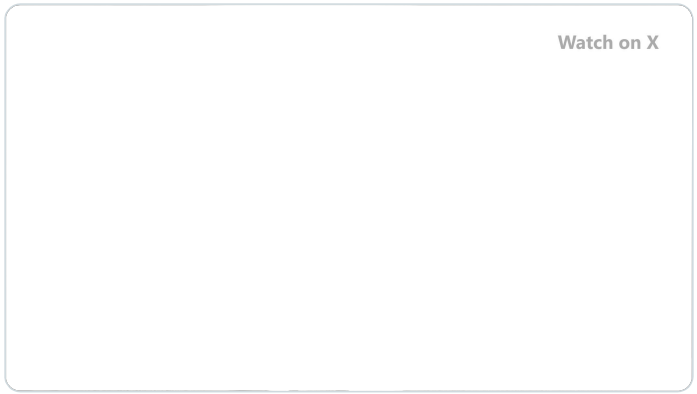
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Review of Peter Kuran's excellent "Neutron Bomb Movie".

Below is a brief clip for review purposes from a longer newsreel of President Eisenhower, enthusiastically promoting the 96% clean fusion Poplar nuclear test (detonated 12 July 1958). On 30 October 1962, Kennedy tested Show more



11:22 PM · Sep 29, 2023

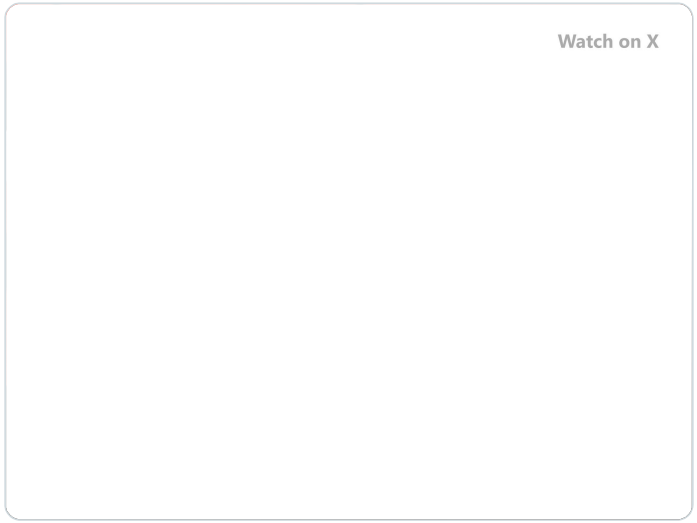
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Attention, Great Britain!

Threats to blow up British nuclear facilities from a Russian propagandist.



5:28 PM · Sep 13, 2023

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More news of Russian TV population preparation for nuclear escalations, which the Western media and politicians continue to ignore as propaganda, just as Novichok and the Ukraine invasion prep was ignored as propaganda bluff, until it took us by "surprise". We need to prepare now

> **Anton Gerashchenko** @Gerashchenko_en
> In the past weeks, Russian propagandists have returned to the nuclear rhetoric, which has dialed down significantly previously.
>
> They are starting to discuss using tactical nuclear weapons and devote their whole propaganda shows to discussing small nuclear strikes. They name

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17558 CONGRESSIONAL RECORD — SENATE September 19

EMP in 19 September 1963 US Congressional Record SENATE

Report submitted by Senator Barry Goldwater during test ban treaty debate

Mr. President, I ask unanimous consent that the first 7 pages of the introduction to a paper prepared by Dr. V. W. Vodicka, technical director, Joslyn Electronic Systems Division, and John A. Kuypers, of Stanford University, may be printed in the RECORD following my remarks.

There being no objection, the excerpt was ordered to be printed in the RECORD, as follows:

The immediate electromagnetic effects of an atomic explosion are massive and diverse. These effects can wipe out critical weapons and communications systems in a few seconds time although the same facilities may survive in the so-called conventional part of the attack environment.

There is more to a nuclear explosion than a spectacular visual display, ground and atmospheric shock waves, heat, and atomic radiation. These are only part of the nuclear attack environment.

Some of the electromagnetic effects (viz., Argus) are trans-hemispheric. All are re-

Nuclear electromagnetic effects have been noted since the advent of nuclear explosion testing. Overwhelming verification of their existence and scope has been built up by correlation of shot times (most accurately defined in foreign technical papers) with concurrent working system outages and damages. This correlation effort by the authors began in 1952 with notations of electromagnetic effects in the vicinity (200 mile radius) of the test grounds.

In August 1958 the Argus test series in the South Atlantic Ocean caused dramatic and unpredicted transhemispheric electromagnetic disturbances. A low-yield shot at 200 miles altitude caused the undersea coaxial cable across the North Atlantic Ocean to intermittently fail in function. Correlated outages existed in critical defense systems at this time but were not published due to classification of facilities logs.

Soviet instrumentation of our test efforts defined our shot times to the second. The times were published in unclassified technical papers.

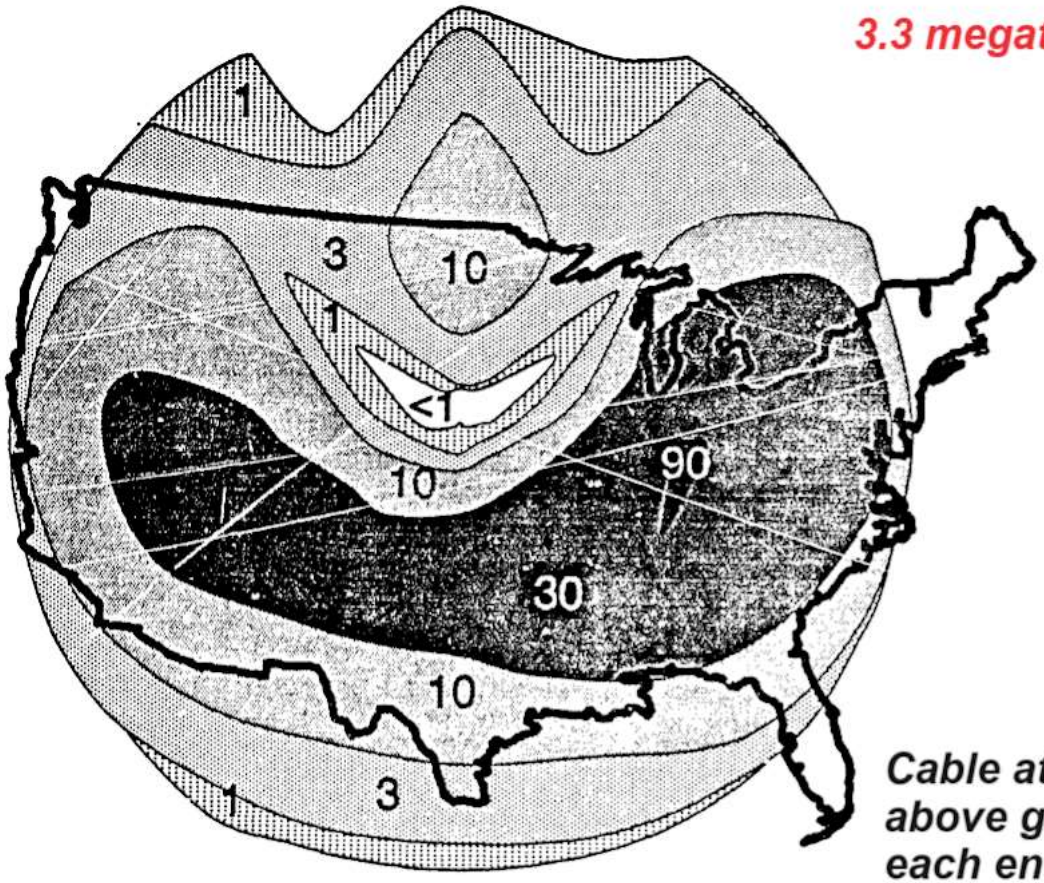
Many tactical and strategic weapons, communications, and command systems are not hard electrically. These systems as now implemented may not survive electronically to the same degree that they will survive mechanically. Catastrophic electrical and electronic failures can be expected in most military facilities which are combined with commercial facilities as now installed to a radius from ground zero as follows if not properly protected:

	Miles
1 MT fusion, low altitude	20
10 MT fusion, low altitude	72
50 MT fusion, low altitude	120

The catastrophic failures are defined as: Vaporization and explosion of electrical conductors (power distribution and communications), equipment component burn out (especially solid state devices) and massive insulation failures due to both conductor overheating and electrical stress (over voltage) and ionization of dielectric.

Lesser systems failures can be expected outside of the radii specified above. Both calculations and actual experience show that

Early low-yield fission test activity cau concurrent outages on powerlines pass the general area. Circuit breakers on m feed lines opened due to over voltage c ditions induced at distances in excess of miles. This extremely powerful effect been observed from the beginning of nucl test activities. It contributed to most of instrumentation failures experienced early test efforts. This effect continues cause instrumentation trouble because i neither recognized nor understood by m instrumentation systems design engine The effect causes potential changes on c ductors in excess of 10,000 volts with times in the order of 20 to 100 nanoseco and durations of 1 second or more. T affects buried cable in the vicinity equ with any aerial facilities that may be standing. Insulation breakdown from v ages, several orders in excess of design st are followed by extremely high curre The result is conductor burnout in the mediate vicinity and high voltages pas down the line to the distant terminal other electrical/electronic facility.



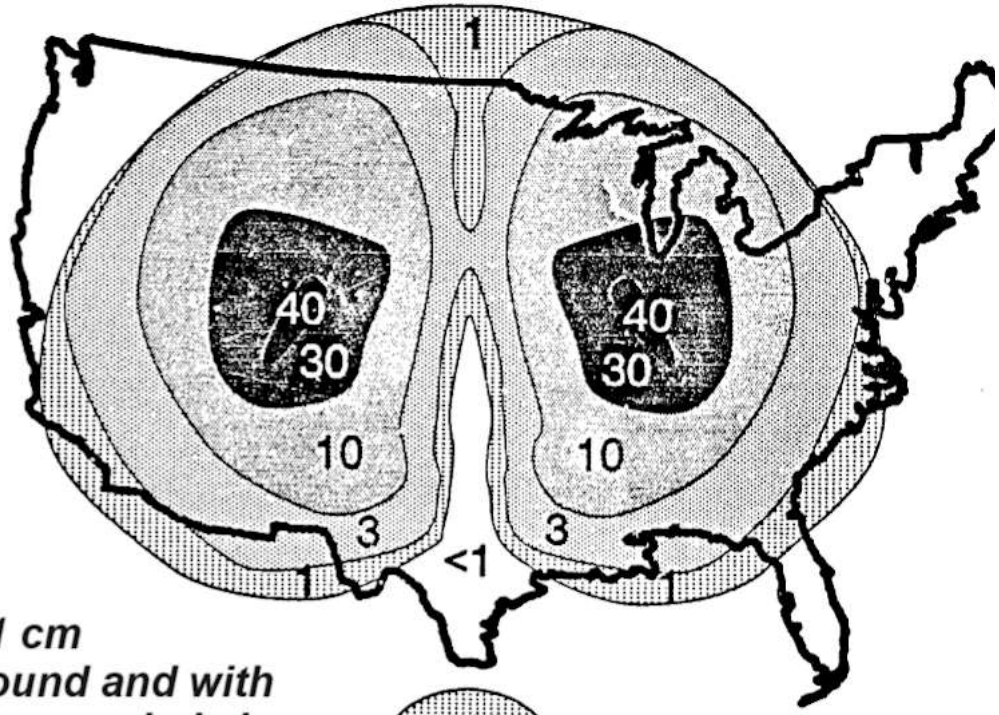
3.3 megaton yield, 400 km over USA

East-West orientated cables

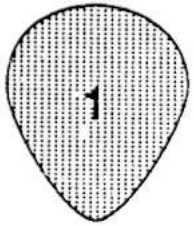
EMP induced in cables from high altitude burst

100 m long cable, energy coupled in mJ

North-South orientated 100m cables



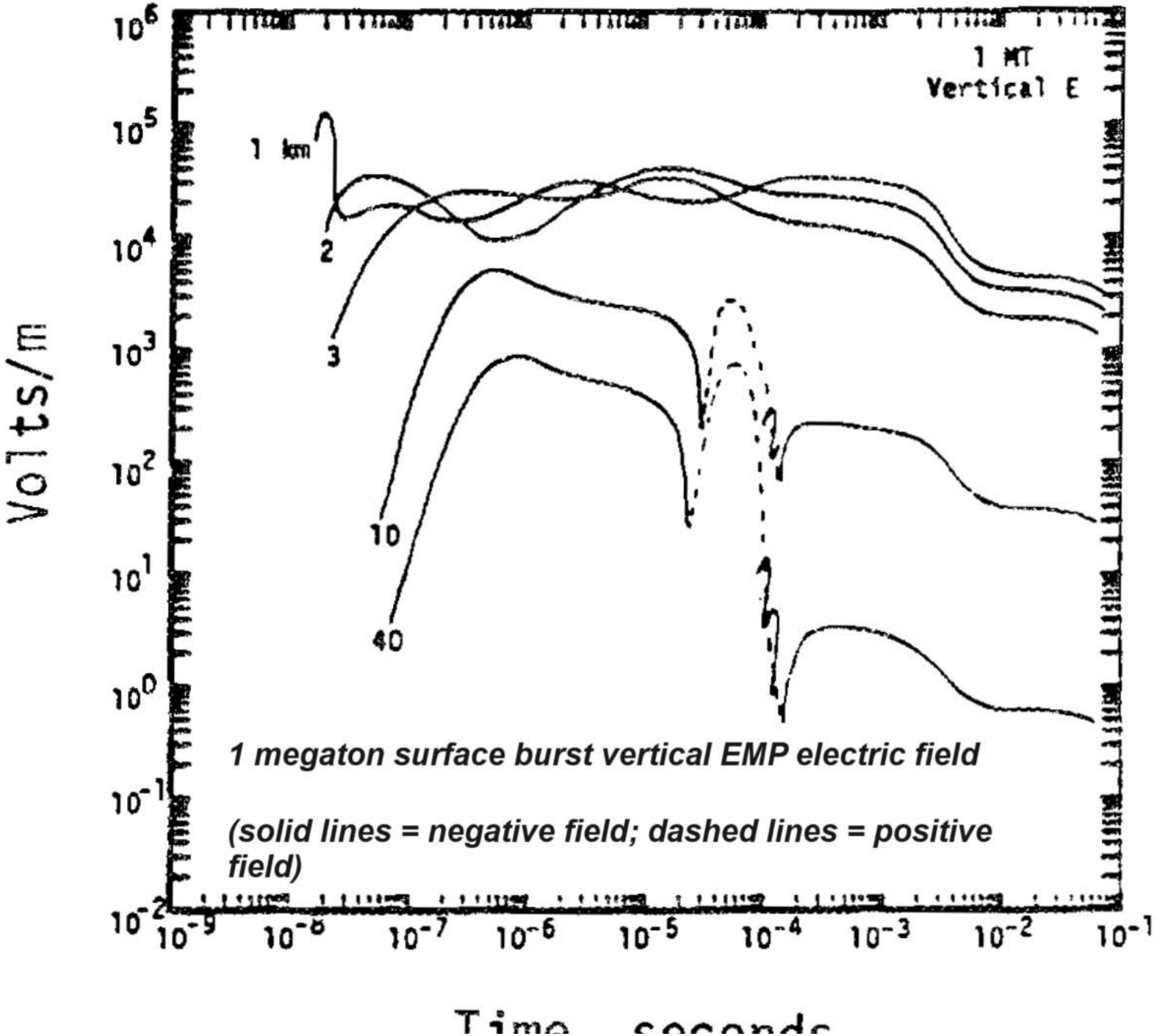
Cable at 1 cm above ground and with each end grounded via a 500 ohm resistor



Mean EMP energy induced in East-We cables is 2.4 times greater than for North-South cables

Robert H. Vandre, Janis Klebers, Frederick M. Tesche, and Janie P. Blanchard, report AD-A239648

This study found that 65% of modern medical electronic equipment failed after 10 mJ of injected EMP

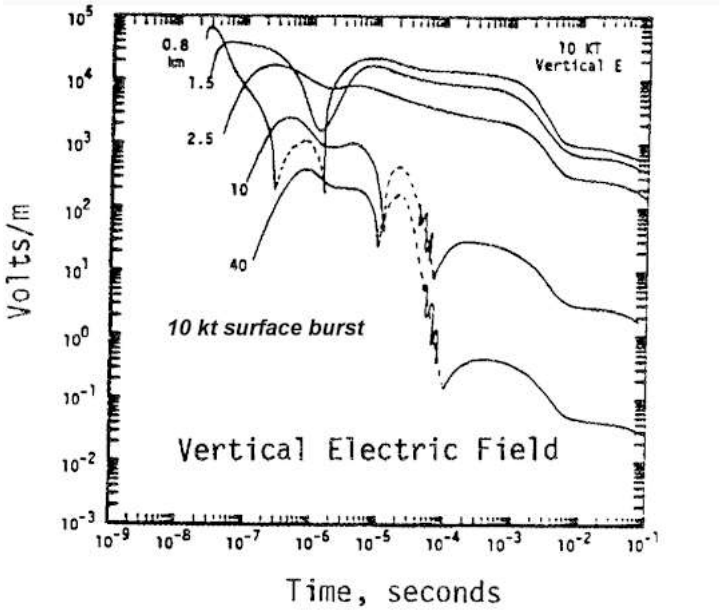


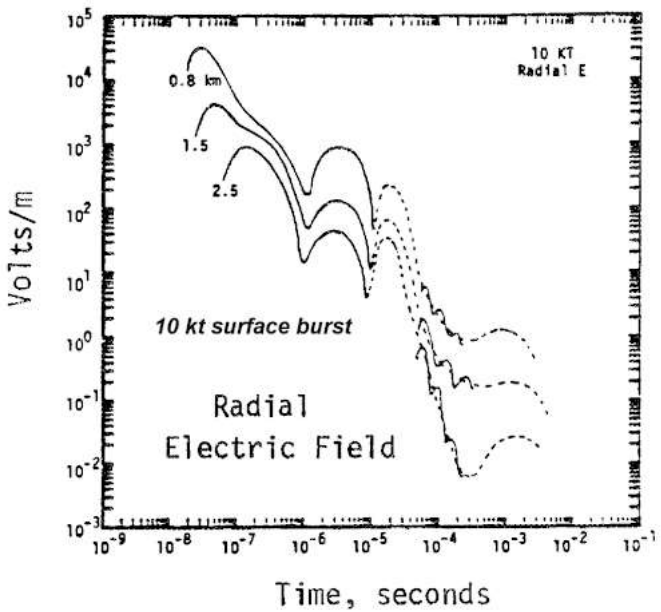
1 megaton surface burst vertical EMP electric field

(solid lines = negative field; dashed lines = positive field)

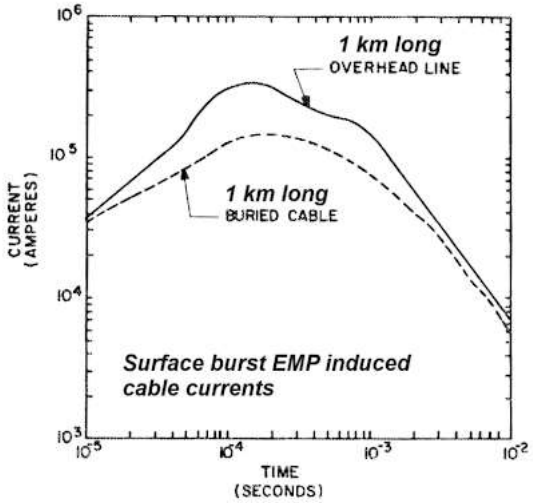
Time, seconds

SOURCE: C. L. Longmire, "History and Physics of EMP," presentation at the Fourth NEM Symposium, Baltimore, Maryland, July 2, 1984.





SOURCE: C. L. Longmire, "History and Physics of EMP," presentation at the Fourth NEM Symposium, Baltimore, Maryland, July 2, 1984.



SOURCE: Longmire, C. L. and J. L. Gilbert, "Theory of EMP Coupling in the Source Region," Defense Nuclear Agency Report No. 5687F, February 1980.

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FILE BEGINS	ENDS	FILE NUMBER

FILE TITLE

Communicati

SAN 62 0019/0007/001/

Effect Of Electro-Magnetic Pulse

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NOTE: This is summary of B. J. Stralser's report of 30 April 1961, "Electromagnetic Effects from Nuclear Tests", DASA-1226, E.G.G. report L-523 (68 pages), SECRET

A64/XV/222/05.

CONFIDENTIAL DISCREET XV/222/05

Some Observations of Electro Magnetic Flash Damage resulting from Nuclear Explosions

Report filed: 7 March 1963

The information presented below has been acquired incidentally during nuclear weapon tests, when instrumentation has been designed to record other effects, and is therefore mainly empirical. Awareness has nevertheless grown that electro-magnetic radiation can cause severe damage or operational disruption in all kinds of electrical systems.

Electro-magnetic radiation from a weapon encompasses a very broad band of radio frequencies and can induce large voltages, and currents in conductors and circuits, even when they are remote from the explosion. Complex control circuits and communication and power lines represent large antennae in which disturbing signals are induced by the radiation and are particularly vulnerable, and damage can occur many miles from the explosion.

The examples quoted here are limited to observations made by the personnel of Edgerton, Germeshausen and Grier during test series from 1951 to 1958. The charts summarize damage under the categories of

1) Damage to Signals Systems

2) Damage to Power Systems

3) Damage to Systems using Earthing and Screening protection.

4) Miscellaneous Damage.

Examination of the data shows that while, in general, damage increases with the yield of the device, and air and balloon shots are more damaging than tower or underground shots, it is not possible to correlate effects directly with either yield, type of device or height of burst. Moreover, while a typical pattern of damage can be observed where extensive cable lines exist, so that probable sites of damage can be indicated, the induced voltages nevertheless tend to build up in an unpredictable manner, similar to a lightning strike. An example of this is the violent explosion at a conduit entrance 1½ miles from G.Z. with no recorded damage to the intermediate signals system.

As would be expected, the lighter conductors used in signals systems showed more serious damage than power lines, but the effect was transmitted to greater distances by the heavier cables, causing circuit breakers to trip at distances of over 30 miles from G.Z. Damage to equipment at intermediate stations could be catastrophic in either case.

A point not apparent from the damage summaries should be noted in respect of telephone communications. The contractors state that it was found necessary to remove the commercial type carbon blocks for voltage surge protection, since these were found in most cases to fuse or weld together, short-circuiting the signal. Jumpers were substituted in their place.

Protection against anticipated effects was employed only in the case of cer equipment, in which extensive earthing and screening devices were used, and these were to a large extent effective. The danger to electronic equipment, however, is shown by the random malfunctioning of the counting unit, controlling timing of camera shutters. This effect was subsequently repeated by an experimentally induced electric field, confirming the cause of failure. It is generally clear th increased sensitivity of equipment implies increased vulnerability to electro-magnetic effects, and that protection of oscilloscopes is necessary to avoid obliteration ('blooming') or distortion of the signal.

Actual measurement of an induced voltage is shown in only one example, where approximately 3250 volts was recorded by a galvanometer, protected by a 10,000 volt air gap, inserted in an unconnected 5½ miles length (paired) of



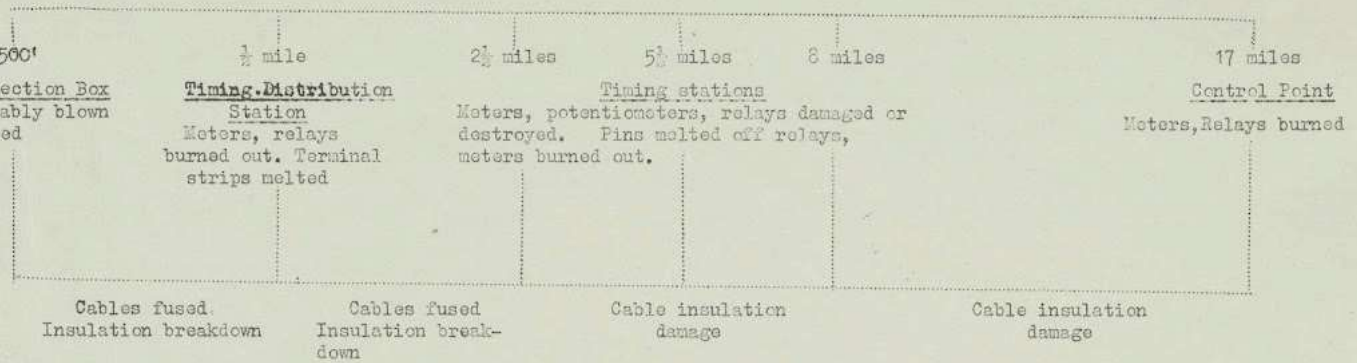
timing signal lines, running from within ½ mile of G.Z.

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Damage to Signals Systems

Typical



Examples

Yield	Type and Height of Burst				
Over-nominal	Tower 700'			2 miles Timing Stns. 6 meters and potentiometers, 3 relays destroyed.	17 miles Control Pt. 2 meters destroyed
Sub-nominal nominal and over-nominal	Series of balloon shots No height given	1500' Connection box for balloon signal cable destroyed.	½ mile Timing Distn.Stn. Insulation destroyed Conductors fused together.	2 miles Timing Stns. Insulation breakdown on cables.	
Nominal	Tower 500'		3500' Timing Distn. Stn. Random malfunction of indicators		
Nominal	Air 524' GRABLE, 15 KT			2½ miles Timing station Random malfunction of indicators	
Sub-nominal	Series of Balloon shots No height given	1500' Connection box for balloon signal cable destroyed	½ mile Timing Distn.Stn. Cables to sub-station and Timing stations damaged.		
Not given	Series of Tower shots No height given	1500' Suppression box Capacitors	½ mile Timing Distn. Stn. Relays burnt out		

		destroyed		
Nominal	Air 6020'		3 miles Telephone relay stn. Carbon contacts fused. Conductors fused in cables on far side.	
Over-nominal	Tower 300'			13 miles Control point Explosion at conduit entrance. Lead sheathing evaporated
Not given	Underground Series	about 1 mile Signal cables fused in underground tunnel		

CONFIDENTIAL DISCREET (2)

Damage to Power Systems

Typical

Distance from G.Z

1000'	3000'	3 miles	12 miles	30 miles
Portable sub-station	Power distribution Station	Power distribution station	Control Point	Power station
Fuses blown, arcing across insulation.	Fuses, blown, arcing across insulation. Short-circuiting across transformer windings. Arcing to transformer case.	Oil circuit breakers tripped		Oil circuit breakers tripped

Pinhole damage to cable insulation, near to sub-station

Cable insulation damage

Examples

Yield	Type and Height of Burst	
Over-nominal	Tower 300'	½ mile. Experimental cages; ½ mile radius from G.2. Cables buried 18" depth. All destroyed by pinholes in insulation.
Nominal	Tower 300'	1000' Sub-station and power stations; 6' underground. Cable between stations destroyed. Transformer primary fused, and arced to core.
Not given	Underground series	about 1 mile, underground tunnel. Insulation damage, by charring, to power cables.

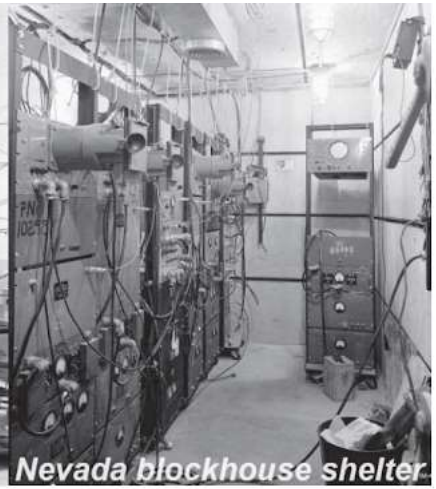
Damage to certain Systems in which extensive Earthing and Screening was used

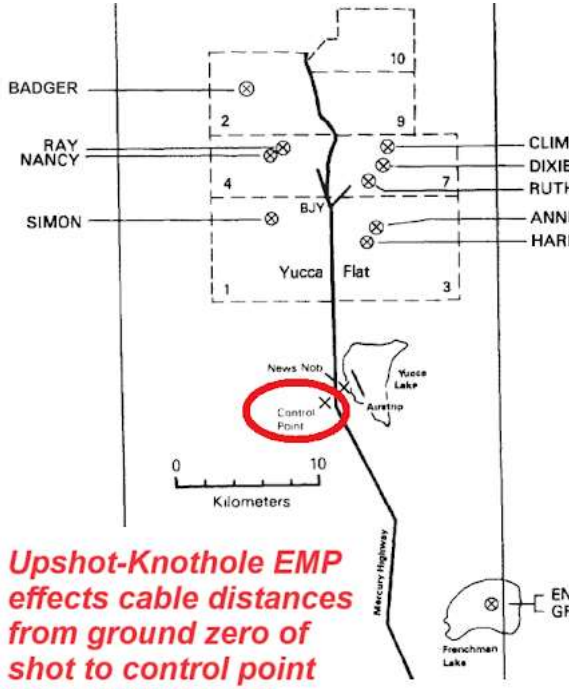
Yield	Type and Height of Burst		Distance from G.Z.
Not given	Series of Tower and balloon shots		Station at 3000 ' Resistors destroyed
Over nominal	Tower 500'		Station at 3000' Oscilloscope exploded
Nominal	Tower 300'	1000' Station 6' underground. Transformer primary fused, arcing to core.	2 miles Photographic recording station. Electronic counting unit. Malfunctioned in random manner.
Not given	Series of Tower and balloon shots	:	Station at 3000' Pins of rectifiers in oscilloscopes burned off. Glass envelope shattered in most cases. 6 x 4 type rectifiers.
Nominal	Tower 500'		11 miles Oscilloscope with photo-multiplier, for light analysis (unscreened) "Ball-of-yarn" distortion of trace.
Not given	Underground Series	about 1 mile, underground tunnel Breakdown of cable insulation, burned spots for 50 feet.	

Miscellaneous Damage

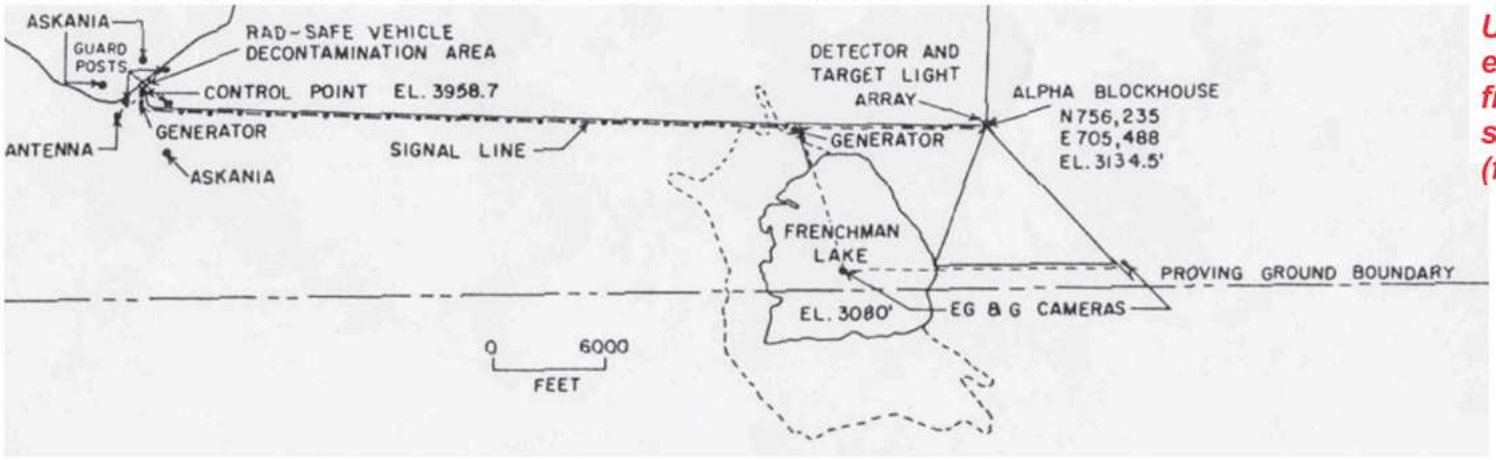
Yield	Type and Height of Burst	Distance from G.Z.	
Nominal	Balloon 1500'	3 miles 1000 feet length of 4-conductor, 6000 V cable, on reel, unconnected. Pinhole damage to insulation along complete length.	600-V cable
Nominal	Tower 300'	3000' 1000 feet length of single-pair wire, on surface, unconnected. Draped over station building. Burning at end touching metal plug in wall, 3" burning on wall, melting of wires for ½".	
Nominal	Balloon 1500'	5½ miles Galvanometer recording of 3250 volts induced in timing signal lines, unconnected, running from timing distribution station at ½ mile from G.Z.	



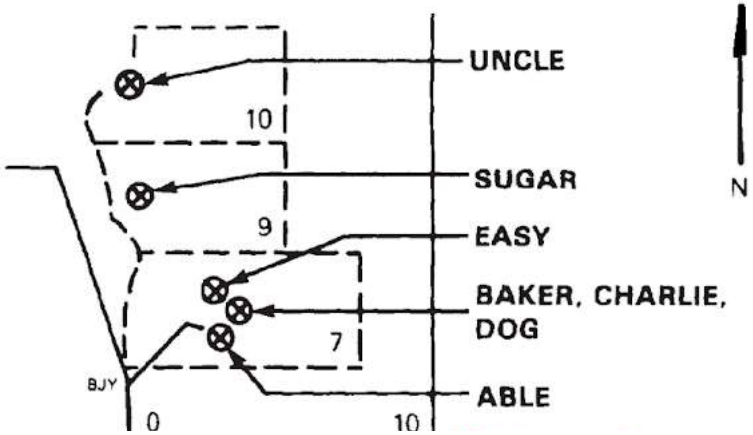


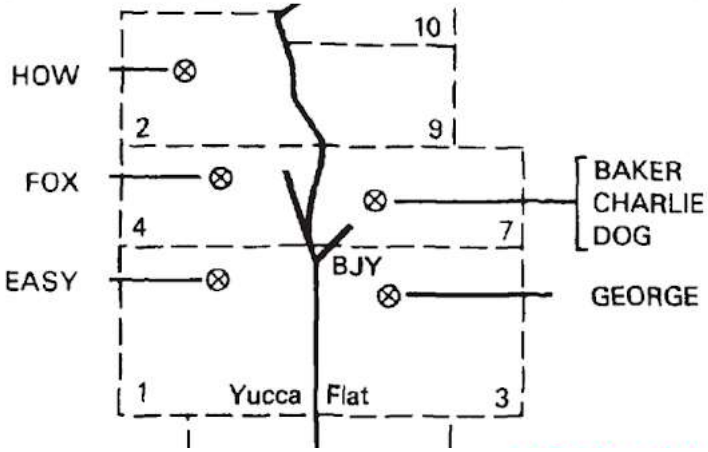


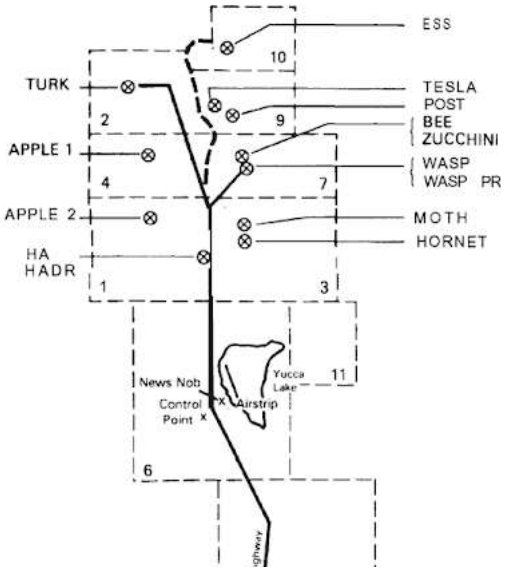
John C. Clark, Operation Ranger, Vol. 1, Report of the Deputy Test Director, WT-206, September 1953

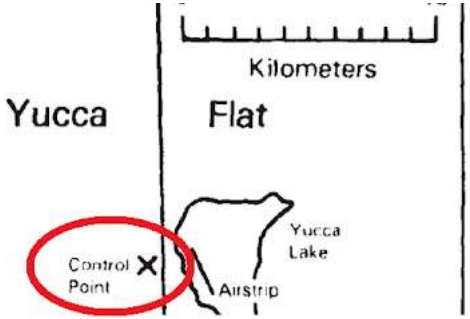


Upshot-Knothole EMP effects cable distances from ground zero of shot to control point (from DNA 6015F)

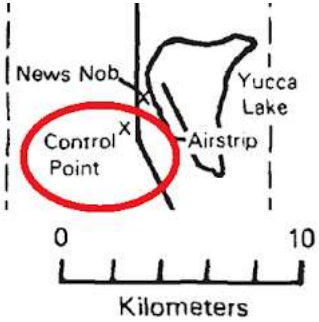




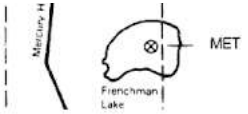




Distance of nuclear ground zero to Nevada control point for 1951 Operation Buster-Jangle tests (source: DNA 6023F)



1952 Tumbler-Snapper map of control point distance to shot points (DNA 6019F)



EMP cable distances from Nevada ground zero to the control po in Operation Teapot (DNA 6009F)

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XY/306/01

Minutes of a Meeting held in Room 208, Horseferry House, Dean Ryle Street, S.W.1, at 10.30 a.m. on 20th October, 1964.

Present		Representing
Mr. H.A. Sargeaunt	In the Chair	Sc. Adv., Home Office.
Mr. J. Brooker		Home Office, Comm. Branch
Mr. R.E. Glaysher		" "
Mr. N. Morley		" "
Mr. R. Watson		" "
Mr. R. Firth		" "G" Divn.
Mr. J. Miles		" S.A.B.
Mr. F.H. Pavry		" "
Mr. G.R. Stanbury		" "
Mr. E. Leader-Williams		" "
Mr. N.F. Law		" Warn. & Mon. Branch
Mr. J. Gelly		" " " "
Mr. G. Potter		" " " "
Sir W.H. Merton		Insp.Gen. of C.D.
Mr. C.E.C. Hurst		Ministry of Public Buildings and Works
Mr. C.W. Mott		C.E.G.B./H.Q.
Mr. E.J. Whitcher		London Elec. Board.
Mr. T. Kilvington		G.P.O./E.D.
Mr. K. Ford		G.P.O./I.T.D. PB.
Mr. R.H. Franklin		G.P.O./E.D. L.M.O.
Col. T.W. Armour		A.W.R.E.
Gp.Capt. P.M. Chettle		M.O.A., A.D./A.W.D.2.
Mr. D.J. Garrard		" A.W.D.2 (Effects)
Mr. T.S. Popham		M.O.D./Ord. Board
Mrs. M.E. Wilkie	Secretary	M.O.A., A.W.D.2.

1. Mr. Sargeaunt introduced the speakers from the Ministry of Aviation and the Ordnance Board, and said that the meeting was specifically concerned with the hazard from electromagnetic flash to electrical installations and equipments of all kinds. Group Captain Chettle said that it was necessary to correlate the damage radius for EM flash with those of the more obvious hazards from a nuclear burst, in order to assess its significance at any given position. A brief summary of the main effects, including nuclear radiation, would be presented, proceeding to EM flash phenomena. Thence the meeting should proceed to its main purpose, which was to obtain the views of users of equipments and installations threatened by this hazard. A knowledge of the problems in the communications and power transmission fields was necessary, in order that research could be directed to their solution. Work in this field was co-ordinated by the Nuclear Weapons Lethality Committee. This was an inter-departmental committee which was the link between the specialists working at A.W.R.E. and those in other Government departments. The staff of D.A.W.D., Ministry of Aviation, acted as executive to the committee.

2. Mr. Garrard said that information on EM flash had lagged behind that on other effects since instrumentation at earlier trials was specifically aimed at weapon design measurements. Much of the data had been accumulated incidentally in making other measurements, and was in consequence less complete than was desirable. However, a few trials had been instrumented to obtain the required parameters, and a sufficiently consistent reservoir of knowledge now existed for the formulation of a theoretical model adequate for engineering purposes.

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time history beginning at 10 nano-seconds. Actually, 5% of the gamma radiation was emitted in the first microsecond, and 20% by the end of one second. To this must be added the neutron emission, which reinforced the gamma pulse by interaction with air and ground elements.

4. Typical curves for the pulse from a megaton and a nominal weapon were shown, giving time history at 1 mile and 2,000 ft. range (from burst) respectively. He pointed out that the EM flash hazard, deriving from the ionising nature of the gamma pulse, was a transient response causing misfiring, or loss of reference in memory circuits. Neutrons, on the other hand, caused permanent damage, changing the electrical characteristics of semi-conductor components. A normal criterion for damage to transistors would be 50% loss in current gain, but sensitivity could be much greater if adjustment were critical. Neutron damage was unlikely to be significant beyond the range for severe blast damage.

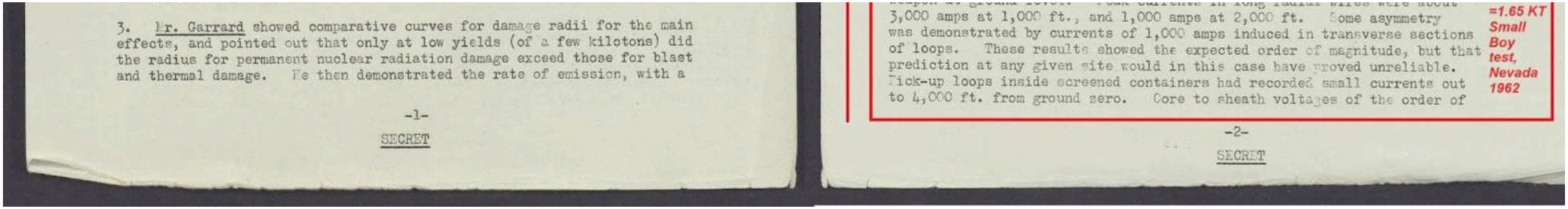
5. Mr. Popham gave a brief account of the mechanism by which the ionised sphere, and hence the electromagnetic pulse, is formed. Electrons are stripped from atoms in the vicinity of the burst by the high energy neutrons and gamma radiations. The consequent Compton electrons flow outward radially, until eventually slowed down and absorbed, and a large sphere of ionised matter results. Oscillations of this sphere produce the electric field observed at a distance. The size of the sphere only varies slightly with weapon yield. About 4,000 volts/metre is the order of magnitude of the electric field expected at its surface. Time history of the EM pulse shows a rapid rise time, in 10^{-8} seconds, a duration of about 10 to 30 microseconds, with frequencies about 10^4 cycles/second. Peak field strength increases with yield, scaling as $W^{1/3}$. Both the electric field and the corresponding magnetic field have been determined for ranges outside the ionised sphere but conditions within the sphere are not known with any accuracy. Extrapolation from observed values outside is not possible, since the highly conducting nature of the sphere distorts all the parameters.

6. Calculation of the induced currents from the field strength and dimensions of the conductor was not difficult. With a simple probe this became the product of field strength and probe length, and diminishes directly with distance from burst. Obviously with more complicated circuitry, comprising loops and sections differently aligned to the field, current strength could not be so easily assessed, and the simple calculation was not valid if the conductor approached the wave length of the pulse. However, it was apparent that large local voltages could build up, with results depending upon resistance or insulation in the circuit. Energies were comparable with those of normal radar, at distances of about 1,000 metres from the ionised sphere.

7. Mr. Miles asked if the ionised sphere could be regarded as a dipole and Mr. Popham agreed that this rationalisation was used in calculating effects, assuming a vertical axis, which appeared to be justified. In reply to Mr. Law, Mr. Garrard indicated the variation of field strengths with distance as shown by curves for electric and magnetic fields. The relation

$E = \frac{10^7}{R}$ (E in volts/metre, R in metres) was true outside the ionised sphere, but within it fields tended to be constant as a result of the high conductivity.

8. Mr. Garrard quoted some results from an actual trial with a low kiloton weapon at ground level. Peak currents in long radial wires were about



3. Mr. Garrard showed comparative curves for damage radii for the main effects, and pointed out that only at low yields (of a few kilotons) did the radius for permanent nuclear radiation damage exceed those for blast and thermal damage. He then demonstrated the rate of emission, with a

-1-

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3,000 amps at 1,000 ft., and 1,000 amps at 2,000 ft. Some asymmetry was demonstrated by currents of 1,000 amps induced in transverse sections of loops. These results showed the expected order of magnitude, but that prediction at any given site would in this case have proved unreliable. Pick-up loops inside screened containers had recorded small currents out to 4,000 ft. from ground zero. Core to sheath voltages of the order of

=1.65 KT Small Boy test, Nevada 1962

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ABOVE: The British government has now **declassified detailed summary reports giving secret original nuclear test data on the EMP (electromagnetic pulse) damage due to numerous nuclear weapons**, data which is still being kept under wraps in America since it hasn't been superseded because Western atmospheric nuclear tests were stopped late in 1962 and never resumed - **even though the Russians have even more extensive data** - completely debunking Glasstone and Dolan's disarmament propaganda nonsense in the 1962, 1964 and 1977 Effects of Nuclear Weapons which ignores EMP piped far away from low altitude nuclear tests by power and communications cables and falsely claims instead that such detonations don't produce EMP damage outside the 2psi blast radius! For a discussion of the new data and also a link to the full 200+ pages version (in addition to useful data, inevitably like all official reports it also contains a lot of "fluff" padding), please see the other (physics) site: **https://nige.wordpress.com/2023/09/12/secret-emp-effects-of-american-nuclear-tests-finally-declassified-by-the-uk-and-at-uk-national-archives/** (by contrast, this "blogspot" uses old non-smartphone proof coding, no longer properly indexed any long longer by "google's smartphone bot"). As long ago as 1984, Herman Kahn argued on page 112 of his book *Thinking About the Unthinkable in the 1980s*: "The effects of an EMP attack are simply not well understood [*in the West, where long powerlines were never exposed on high altitude nuclear tests, unlike the Russian's 1962 Operation K, so MHD-EMP or E3 damage wasn't even mentioned in the 1977 Glasstone and Dolan Effects of Nuclear Weapons*], but the Soviets seem to know - or think they know - more than we do."

BELOW: **declassified British nuclear war planning blast survival data showing that even without special Morrison table shelters, the American assumption that nobody can survive in a demolished house is false, based on detailed WWII British data (the majority of people in houses flattened within 77 ft from V1 Nazi cruise missiles survived!), and secret American reports (contradicting their unclassified propaganda) proved that blast survival occurred at 16 psi overpressure in Hiroshima's houses, e.g. see limited distribution Dirkwood corp DC-P-1060 for Hiroshima, also the secret 1972 Capabilities of Nuclear Weapons DNA-EM-1 table 10-1, and WWII report RC-450 table 8.2, p145** (*for determining survival of people sheltered in brick houses, the WWII A, B, C, and D damage versus casualty data from V1 blast was correlated to similar damage from nuclear blast as given Glasstone's 1957 Effects of Nuclear Weapons page 249, Fig. 6.41a, and page 109 Fig. 3.94a, which show that A, B, C, and D damage to brick houses from nuclear weapons occur at peak overpressures of 9, 6, 3 and 0.5 psi, respectively; the longer blast from higher yields blows the debris over a wider area, reducing the load per unit area falling on to people sheltered under tables etc*), and the declassified **UK government assessment of nuclear terrorist attack on a port or harbour, as well as the confidential classified UK Government analysis of the economic and social effects from WWII bombing (e.g. the recovery times for areas as a function of percentage of houses destroyed)**:

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MOD Form 45B

MINISTRY OF DEFENCE

PRO

Registered file number D/407/104/11/10

1. ATTENTION IS DRAWN TO THE NOTES ON THE INSIDE FLAP
2. ENTER NOTES OF RELATED FILES ON PAGE 2 OF THIS JACKET

DIVISION D. Sc. 6.

FOR REGISTRY USE ONLY

SUBJECT NUCLEAR WEAPON EFFECTS — SYMPOSIUM - DECEMBER 1970.

Date opened 17/8/70

Referred to	DATE	Referred to	DATE	Referred to	DATE	Referred to	DATE

DEFE 7/2401

CLOSED 10-3-76.

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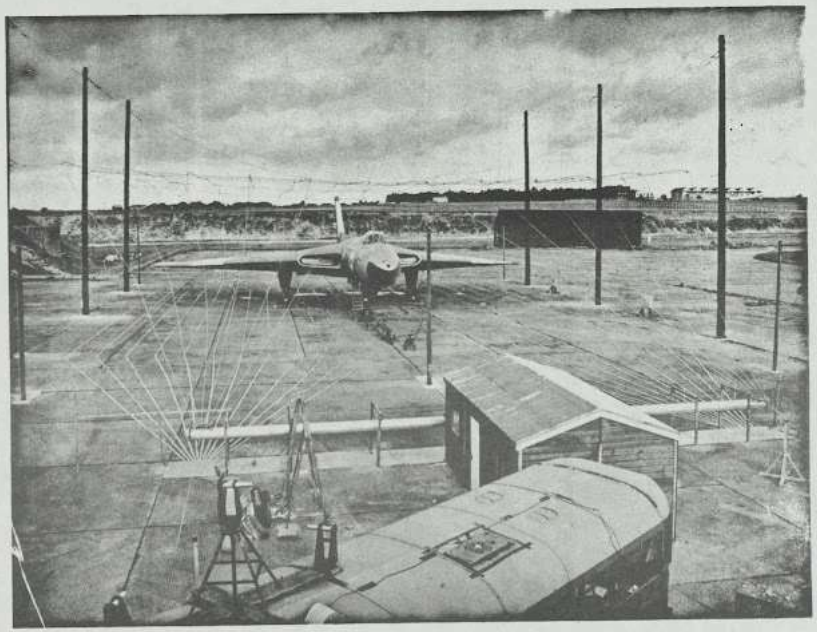
Page 104

4 Conclusion

In the two years since we first started work we have begun to understand some of the problems caused by EMP. A degree of confidence has been gained from this experience, but it is recognised that the greater part of the task lies in the future and there is still much work to be done.

EMP simulator test of tank, Nuclear Weapons Effects Symposium, 11 December 1970 (UK National Archives, DEFE 7/2401)

EMP simulator test of aircraft, Nuclear Weapons Effects Symposium, 11 December 1970 (UK National Archives, DEFE 7/2401)

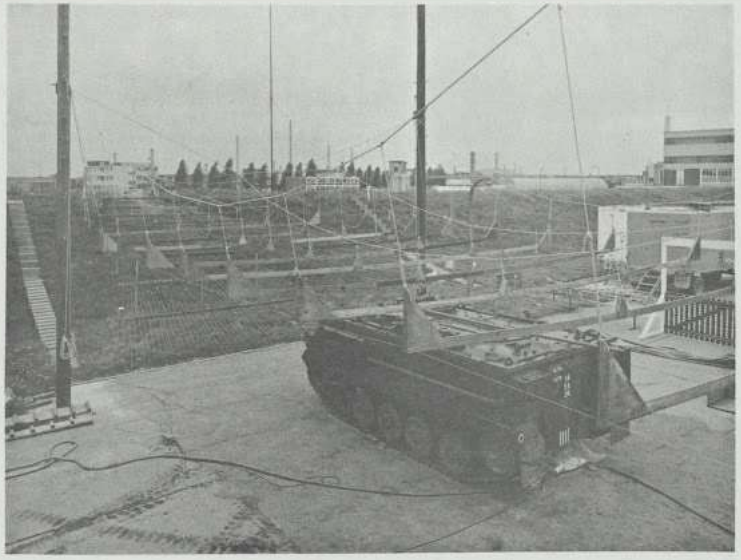


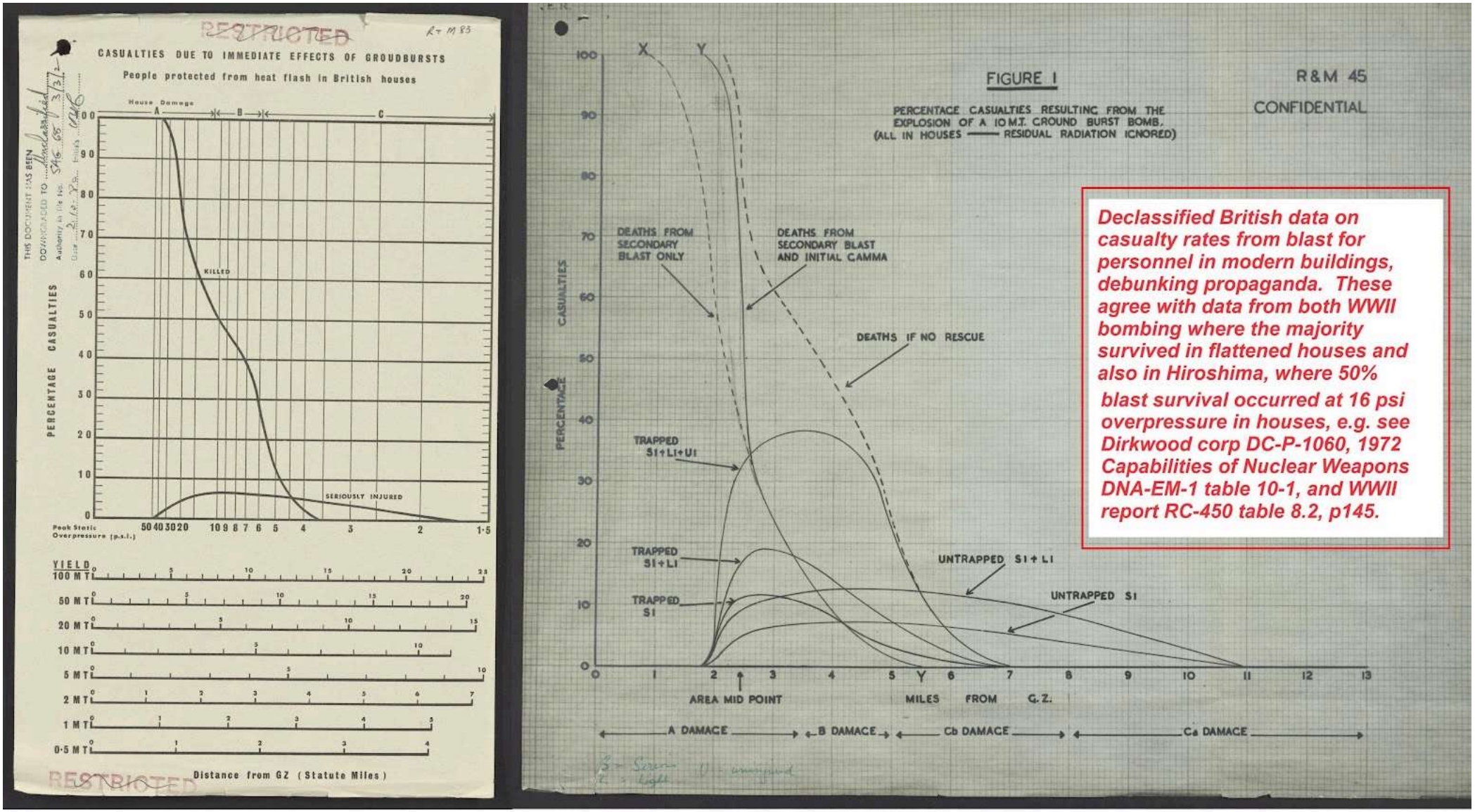
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Fig. 1.

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Declassified British data on casualty rates from blast for personnel in modern buildings, debunking propaganda. These agree with data from both WWII bombing where the majority survived in flattened houses and also in Hiroshima, where 50% blast survival occurred at 16 psi overpressure in houses, e.g. see Dirkwood corp DC-P-1060, 1972 Capabilities of Nuclear Weapons DNA-EM-1 table 10-1, and WWII report RC-450 table 8.2, p145.

UK National Archives catalogue document: HO 225/13

TABLE 70

Relation between facts given in the local press of raided towns and the intensity of attack

	York	Norwich	Greenock	Exeter	Canterbury	Bootle	Clydebank
Number of looters reported as convicted, per 1,000 people in the town.	0.01	0.03	0.05	0.22	0.05	0.55	(0.75)
Time in days before any schools reopened.	0	0	13	21+	?	22	>120
Time in days before details of damage were given.	30	30	26	30	30	some at 14	>120
Time in days before town was named.	0	0	26	5	0	0	34
% of buildings destroyed.	0.7	8.7	(7)	9.8	(10)	(11)	(27)
% of houses destroyed	0.7	5.1	5.2	5.8	9.5	8.1	33
Days lost per worker for all reasons.	0.6	2.3	4.3	3.2	2.3	4.8	7.6
Days lost per worker for personal reasons.	0.7	1.1	3.0	0.9	1.3	2.8	6.5

Figures in brackets represent estimates.
Days lost per worker are for the first three weeks in both cases.

Los Angeles Times

★ SUNDAY, DECEMBER 18, 1960 Section C—5

MAX LERNER:

A Look at the Nuclear Horror

I have been reading a hair-raising, terrifying, sober and important book. It is "On Thermonuclear War," by Herman Kahn, which has just been published (Princeton), and which may well turn out to be the most important political-military work of our era.

He feels that much of the "liberal" thinking about nuclear weapons is soft, fuzzy and unnecessarily innocent. He is strongly against unilateral disarmament, against tender-mindedness in dealing with the Russians, against "excessive accommodation," against assum-

Hence, he goes so far a to propose that Americ should develop "Credibl First Strike Capabilities, not to use in any pre ventive war adventure bu to convince the Russian that America will not limi itself only to responding t Russia's moves, but i capable of striking first i

ing that trust and faith on our part will generate equal qualities on theirs.

she is provoked to it.

THE EVENING SUN, BALTIMORE, WEDNESDAY, JUNE 27, 1962 A 24

Books In Review

A Prod To More Rational Thinking About Thermonuclear Policy

THINKING ABOUT THE UNTHINKABLE. By Herman Kahn, Horizon Press. $4.50.

Mr. Kahn contributes some substantial ideas on civil defense, based on his suspicion that destruction of an enemy population is far from a likely first aim; hence that there is a larger chance of city survival than has sometimes been thought, and hence justification for increased effort to save as many civilian lives as possible. This is not comparable to the real first priority objective, which is the full deterrence of war, but it is not negligible. The author sharply dis-

Against that large and well presented background Mr. Kahn lists the problems of the future. Most of them are extremely disagreeable but that does not disqualify them as subjects for sober thinking. He follows with a recital of fourteen possible national policies, ranging from a total renunciation of all violence to a pre-emptive war. In that gamut almost anyone can find his own favorite policy, with a certainty that he will be opposed by advocates of

counts some of the gloomiest predictions of total destruction and, while recognizing the tragedy of any civilian loss at all, insists that reduction of the loss is not only possible but wholly desirable.

—o—

all the other thirteen.

This granted, some thinking on the future is still desirable, particularly if Mr. Kahn is right in his estimate that the decade of the Sixties will prove more of a turning-point than any other period of the century. And if he is right in his reasonable belief that even lucky muddling-through would benefit by some guidance from systematic thinking.

MARK S. WATSON.

The Gazette and Daily, York, Pa., EDITORIAL Tuesday Morning, March 21, 1961 1

The Morality Of The Rand Corporation's 'Thinkers'

How We Can 'Win' A Thermonuclear Conflict

By JAMES R. NEWMAN

Most Effective Posture

Do we need civil defense? The important thing is to fit civil defense into the large strategic program: "Counterforce" and "Credible First Strike Capability," to make sure we gain the most effective "posture" for "Preattack and Postattack Coercion."

Kahn summarizes his general notion of the most desirable "posture." We should have, he says, "at least, enough capability to launch a first strike in the kind of tense situation that would result from an outrageous Soviet provocation, so as to induce uncertainty in the enemy as to whether it would not be safer to attack us directly rather than provoke us. The posture should have enough of a retaliatory capacity to make this direct attack unattractive."

THE OBSERVER WEEKEND REVIEW, MARCH 3, 1963 Books 23

Thermonuclear bogyman

By John Strachey

THINKING ABOUT THE UNTHINKABLE. By Herman Kahn. (Weidenfeld and Nicolson. 25s.)

AS Mr. Michael Howard, the military historian, is accustomed to insist, the three great "scandalisers" of the modern epoch have been Machiavelli, Clausewitz and Marx. What is it, he asks, that these three so apparently unrelated thinkers have in common which has made them bogymen to the general public? His answer is that these three men, to a greater extent than anyone else (except perhaps Hobbes?), thought in terms of power and power relationships. They seemed, though this was by no means exclusively the case, to ask, not what ought to be done, but what will happen, given the existing power relationships in the world.

Now people apparently cannot easily bear this approach. Power is so terrible and ominous a thing that

we still have deep repressions about its discussion. "Mankind," as Mr. Eliot has it, "cannot bear very much reality." And apparently it can bear hardly any reality at all over this question of power.

✦ ✦

It is instructive to observe that exactly the same fate has overtaken one of the principal analysts of the conflicts of the present nuclear age, Mr. Herman Kahn.

14 The Sydney Morning Herald, Saturday, June 1, 1963

Nuclear Gamesmanship

EVER since the publication of "On Thermo-nuclear War," Herman Kahn has been either denounced as a warmonger or praised as a military realist.

THINKING ABOUT THE UNTHINKABLE, by Herman Kahn. — Weidenfeld and Nicolson, London. 254 pp. 31s.

There seems to be no middle view of him. For someone who claims to be dispassionately devoted to the study of modern strategy, he has aroused strange passions. Bertrand Russell has virtually labelled him a sadist; but John Strachey, the British Labour M.P. who is among his admirers, compares him with Machiavelli, Clausewitz and Marx as an analyst in power.

His supporters hold that right or wrong, good or bad, and to be investigating it simply as a possible phenomenon.

Mr Kahn naturally supports his supporters and maintains that he should not be judged on moral grounds.

But the fact remains that his work is deeply coloured by moral commitment. He is committed to the political stance of the West, to the idea of survival and recuperation after a holocaust, to belief in war as an instrument of policy, to belief in a sense that practical preparations, both material and mental, can be made in order to reduce the slaughter to a minimum, but in the sense that morally the sacrifice of 50 million or 150 million or 550 million people is worthwhile.

These attitudes influence the so-called objectivity of his judgments.

"On Thermo-nuclear War" touched off a tremendous debate over civil defence in the United States. Mr Kahn's special achievement was that he confounded the doomsday seers and rationalised the faith of many Americans—the faith which is neatly expressed in the

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he cannot be said to urge the waging of thermo-nuclear war any more than, for instance, Machiavelli can be said to advocate the use of the political manoeuvrings described in "The Prince." In other words, Mr Kahn is supposed to stand outside the moral question of whether mass annihilation is

ment of persuasion.

To him, thermo-nuclear war is thinkable not only in the practical sense that its results can be calculated, but in the moral sense that, under certain circumstances, it could be desirable.

To him, such a war is manageable, not only in the

words broadcast over loud-speakers in some New York schools as the pupils crouch in corridors and under desks during the periodical air-raid drill: "Remember, children—you can survive!"

His new book offers second thoughts on the subject of how wars might be caused and might be fought.

The Gazette and Daily, York, Pa., EDITORIAL Friday Morning, June 22, 1962 25

Too Much Thinking About The Unthinkable

The Military Scientists

By JOSEPH BARRY
(Special to The Gazette and Daily)

Paris—Sometime this month America will explode a megaton bomb in the Pacific stratosphere and Herman Kahn will publish another book on thermonuclear war, "Thinking the Unthinkable."

The prospect of the first has upset, of all people, our best allies, the British. The publication of the second, following on the heels of Kahn's first book, which an English science writer has called "thermonuclear pornography," seems bound to do the same.

A scientific friend, who has seen an advance copy of the Kahn opus, writes in a letter that some unkind reviewer will re-title it, "Reading the unreadable," though he himself believes it's worth the struggle.

As for America's explosion of a hydrogen bomb with the force of 1,000,000 tons of TNT, in order to test its effect on the Van Allan radiation belt, no voice has been more irate than that of Sir Bernard Lovell, head of the Jodrell Bank Radio Astronomy Station, on which, ironically, America depends for the tracking of its satellites.

"These proposals to make nuclear explosions in space," said Sir Bernard early in May, "arise from a small group of military scientists, unknown and unidentified to the world at large, who have persuaded their masters to make a series of huge gambles under the guise of defensive necessity."

"has the right to change the environment in any significant way without prior international study and agreement."

Then he concluded with this crushing contradiction: "The U.S. has done reasonably well in this respect by giving at least full advance announcements."

Prof. Lovell several days ago pointed out the obvious fact that "advance announcements" do not constitute "prior international study and agreement." Moreover, he reaffirmed his opinion that the American test might very well be a "sledge-hammer blow at the radiative environment of the earth."

The Morality Of Kahn

What puzzles the British professor is the American scientists' failure to act according to their own professed principles of international consultation and scientific responsibility. For him it raises the moral question of scientific decisions, at least insofar as they affect the world at large.

Another Britisher, the scientific correspondent of The Observer, mused (early in May, too) about the morality of Herman Kahn, who, he said, "blandly discusses theoretical situations in which 20,000,000 casualties might seem 'acceptable,' world-destroying 'Doomsday Machines' as ultimate weapons in the weird calculus of deterrence (etc., etc.)"

To satisfy his own curiosity, the Britisher visited Herman Kahn in his home on the Hudson, where "he lives a thoroughly non-belligerent life." The writer found him somewhat changed, "become more impress-

searchers as to where each drew the line. "At one extreme, Kahn decided, was the Hindu who draws the line at killing an ant. At the other, he quotes three scientific colleagues, 'all bachelors,' who would consider the mankind-destroying Doomsday Machine a possible deterrent weapon, 'but they drew the line of a galaxy-destroying machine.'"

Kahn himself, you might be happy to know, draws the line at destroying cities with thermonuclear weapons. "You shouldn't do it," the British reporter says he says.

Possibly this last principle has found its place in Kahn's new book. If so, such is the gap between the pacifist and the war-game theorist, a considerable step has been taken toward reconciliation of morality and cold reason.

"This rapprochement is not taking place gracefully," Paul Weidlinger, engineer, physicist and friend, has just written me toward the end of an eight-page paper tightly analyzing both camps. "In fact, the opposing parties seem to be brought together with their heels dragging and themselves screaming. Namecalling, quoting out of context and distortions are de rigueur in this battle.

"Equally important is that rumblings of a similar conflict are clearly heard from the other side of the iron curtain. These are hopeful signs. In more ways than one, we may find that the realpolitik of our scientific decision-makers and the categorical imperative of the moralists turn out to be reconciliable in a marriage of convenience."

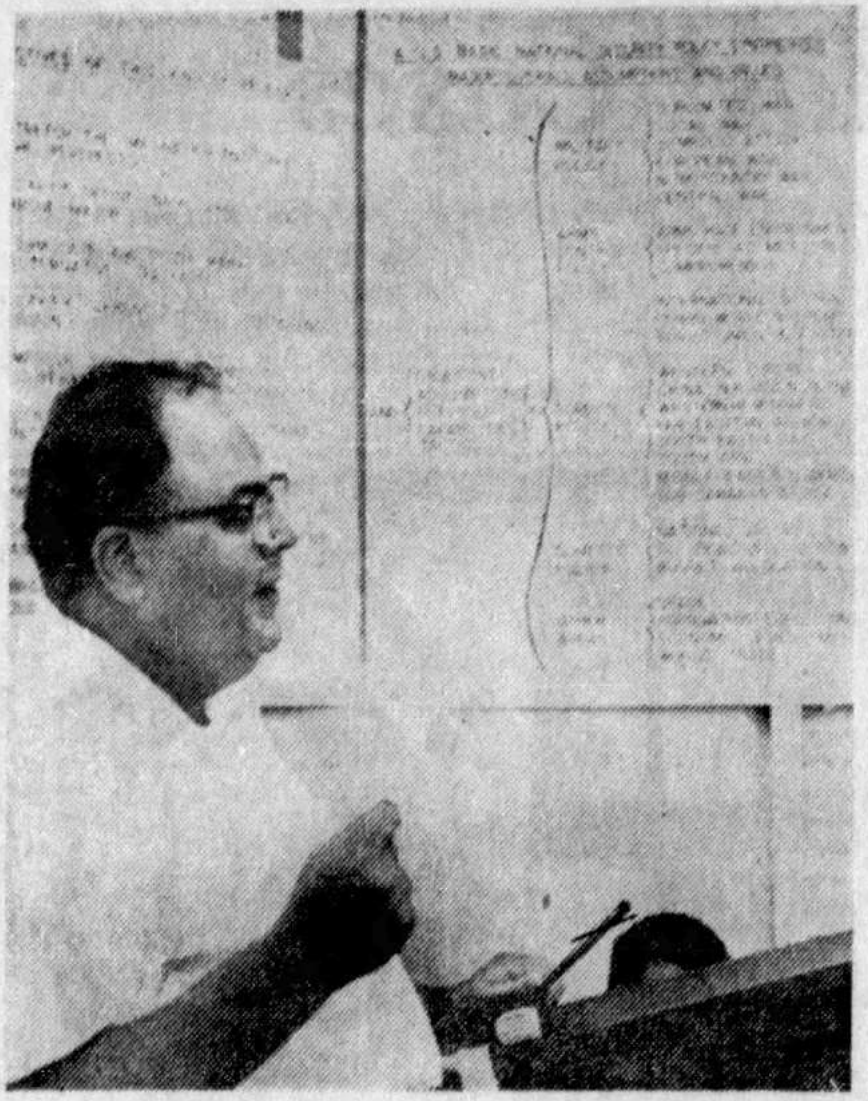
Early this month, American Professor S. Fred Singer surfaced from anonymity and replied to the British critic. In effect he claimed there would be no great damage done—and if there were, it would not be permanent. "No government," he agreed.

ed by moral arguments; first you see them, then you accept them, then you believe them.'"

The weirdest story he heard from Kahn was the latter's inquiry among Rand re-

Weidlinger, who is a consultant of our Defense Dept., concludes: "In any case, this battle of ideas between both camps and on both sides of the iron curtain must be encouraged. The least we may gain is time at most, a second chance . . ."

30-E THE MIAMI HERALD Thursday, May 14, 1964



—Associated Press Wirephoto

Dr. Strangelove's Mentor

. . . Dr. Kahn thinks the 'unthinkable'

By RICHARD WHALEN

HARMON - ON - HUDSON, N.Y. — (AP) — Herman Kahn, who contends a doomsday machine could be built, now runs a "think factory" where scholars ponder and debate nuclear war.

"We think about the unthinkable," Kahn likes to say.

His staff of 25 do their thinking in sylvan seclusion high above the Hudson River at the Hudson Institute. This year it has nearly one million dollars in federal contracts, mostly for advice on nuclear strategy.

Kahn, a rotund, bespectacled dynamo who speaks at breakneck speed to keep up with his thoughts, is a physicist-mathematician turned philosopher.

A doomsday machine, if you didn't know, is a super-nuclear bomb buried deep in the ground and powerful enough to blow up the whole world. It would be set to go off by computer under a given set of circumstances — for example, if another country destroyed the United States by atom bombing.

"Now we've reached a point where you don't have to think of pushing every button in the house if you think the enemy is attacking. You can be more selective, more deliberate in your response."

The doomsday machine, he points out, is the opposite of such a "controlled response."

Kahn says his doomsday machine theories first stated in his book, "On Thermonuclear War," helped inspire Stanley Kubrick's satirical movie, "Dr. Strangelove, or how I stopped Worrying and Learned to Love the Bomb."

'Think Factory' Gets $1 Million From the U.S.

The man who postulated the doomsday machine and inspired "Dr. Strangelove" now runs a "think factory" for the government, thinking about the unthinkable. A look at Herman Kahn and his group of thinkers.

★ ★ ★

KAHN is opposed to doomsday machines. But seven years ago he declared it's theoretically possible to build one. His purpose: to provide a ridiculous extreme as an antidote to overly eager militarism.

"It's the best deterrent you can think of," he says, "but nobody wants one . . . the goal is controlled deterrence."

Comfort for Optimists: Nuclear War Wouldn't Be an 'All-Out' Affai

HERMAN KAHN

Last Friday, The Sun devoted all of Page Five to excerpts from Herman Kahn's provocative book about nuclear war, Thinking About the Unthinkable. In response to requests from readers, further extracts appear today and tomorrow.

Mr. Kahn is director of New York's Hudson Institute, a private corporation which specializes in theoretical studies of thermonuclear war for the U.S. Defence Department. His book is published by Horizon Press, New York, and is copyright, 1962, by Herman Kahn.

By and large, most Americans and perhaps most other people find it hard to believe in the possibility of a controlled war.

It is difficult for many to believe that once a war starts either they or the enemy might be deterred from any action against each other by fear of reprisals.

Many have a feeling that thermonuclear war must be all-out and uncontrolled.

This is a naive point of view for two distinct reasons: first, it is not sensible, and second, it may not be true.

Even if one tries to be uncontrolled, he may find himself being threatened so persuasively by an enemy that he will control himself at the last moment.

One reason why we Americans and others of the West do not fully understand these possibilities is that we have been bemused by the examples of World War I and World War II — two of the most unlimited wars in history.

There was little attempt to negotiate during them. There was a widespread feeling that one did not negotiate during the course of a war unless one was either clearly victorious or clearly defeated.

The only moral or practical objective was to destroy the enemy's military power and then to dictate a peace.

Yet even in World War II it should be noted there were elements of control.

★ ★ ★

IF A MILITARY PLANNER JUST BEfore World War II had been asked to list the three most terrifying weapons of the coming war he would probably not have failed to include poison gas.

Indeed, by 1939 gasses had been made vastly more deadly than any used in World War I. In the all-out World War II, however, no gas was used by either side.

While to most people World War I and World War II are prototypes, actually they were most extraordinary wars. A study of the history of warfare between civilized nations reveals few periods in which the strategic doctrines of these wars held sway.

The more classical way has almost always been to fight for some definite, generally limited objective, or to prevent the enemy from attaining some such objective.

Accepting this view, countries have tended to make their actions, fighting, pressures, and reprisals consistent with their limited objective, in some sense.

Although modern technology has given nations the ability to fight uncontrolled wars greater than any in history, it has also made the sanctions against fighting such wars larger than ever before.



KHRUSHCHEV
. . . can war be limited?

We found this out in Korea. Before Korea, few Americans would believe we could limit ourselves as we did there. In Korea we learned that just like anybody else we can be deterred, we can be cautious, we can be responsible.

Moreover, what is equally interesting and unknown to most Americans is that the Communists in the Korean conflict also behaved with caution.

While we did not attack supply bases and airfields in China, neither did the Communists interfere with our long, vulnerable supply lines by using submarines or mining. Had purely military considerations prevailed it is clear that "Chinese" and "North Korean" submarines might have had a field day in the seas surrounding Korea.

★ ★ ★

AMERICANS ARE NO TOUGHER THAN, say, the Japanese or the Germans, and these people surrended rather than fight to the last man. Similarly, we may be restrained by sufficiently large threats—after an attack as well as before.

I suspect that the main reason why Americans find it difficult to believe a war can be fought rationally or reasonably is that in our country, for the most part, we do not give force any rational or reasonable role.

We feel that only a law violator, a criminal, a desperado, or a sick or insane person uses force.

When we find somebody using force he is not only our enemy, he is an enemy of humani and should be exterminated or locked up a treated, but not negotiated with. We then all out in our attempt to control or dest him.

★ ★ ★

THIS, IS, I AM AFRAID, A SOMEWHnaive view. Force has been around for ma years. It has been used by good, bad and ind ferent people. It has been used rationally well as irrationally.

It is perfectly possible for us or the Sovi to use force in a reasonable fashion, at le in the sense that we need not use it in a wil unreasonable and extravagantly reckl fashion.

This is true even though it may be unr sonable, if not immoral, to settle disputes the use of force.

Having unreasonably or immorally decid to use force, one can still wish to see it us reasonably as opposed to recklessly.

Both of the American biases — the unwillin ness to initiate the use of moderate levels force for limited objectives and the too gr willingness, once we are committed, to u extravagant and uncontrolled force — potentially dangerous and should be guard against.

These biases could have the most seric consequences unless we deliberately and c sciously think about ways in which viole may occur and still be kept relatively limit — at least compared to an uncontrolled si ation.

B-4 The Virginian-Pilot and The Portsmouth Star, Norfolk-Portsmouth, Va., Sunday, Dec. 24, 1961

Herman Kahn: 'Monster' in Person

By Laurence Barrett

Herald Tribune News Service

Herman Kahn, the man who insists we can survive a nuclear war, comes across better in person than in print. He is a round, jovial scientist who could pass for the owner of a kosher delicatessen in his native land, the Bronx.

In his book, "On Thermonuclear War," and in other writings, Kahn discusses his subject with chilling empiricism.

"Despite a widespread belief to the contrary, objective studies indicate that even through the amount of human tragedy would be greatly increased in the postwar world, the increase would not preclude normal and happy lives for the majority of the survivors and their descendants," he wrote in the book.

He went on to estimate how many millions might die. Apparently he believes the number is smaller than most of us think, or at least that the toll can be reduced to manageable proportions if we are wise. Of one thing he is convinced: our civilization can survive a third world war.

The Kahn thesis has met

war and peace objectively. Let us equip ourselves to meet any circumstance. Let us come through alive if the worst occurs.

His business is inquiry. Last summer Kahn and a few associates created a new instrument for exploration, a nonprofit research organization in White Plains, N.Y., called the Hudson Institute.

The other members of the Hudson think factory's executive committee are David Truman, chairman of the public law and government department at Columbia University; Harvey Picker, president of Picker X-ray, and two lawyers, Oscar Ruebhausen and Max Singer.

Since 1947 Kahn had practiced physics and mathematics at the Rand Corporation of California, a research outfit that is largely dependent on Air Force contracts.

"Hudson will be a high-class Rand," Kahn said. "I left Rand because it was bound too closely by government work. It was difficult to do really broad work there. We will not depend on a single patron and much of our work will be made public. Our sphere will be national security and international order."

Hudson got its first four commissions from IBM's Federal

federal government—now negotiating with Hudson—need the circle of think organizations that have come into being since World War II?

"If the president of IBM needs a brain operation," explained Kahn, "he does not call in the plant doctor. He gets the best brain surgeon he can find.

"Experts in our field are as rare as good brain surgeons, and they don't work for IBM." As for Washington, "It simply hasn't the capacity to carry on sustained studies that may take three years. So they come to us."

In the midst of an interview in his rented house in Chappaqua (the Kahns are having a new house built nearby with its own combination blast and fallout shelter), Kahn's petite wife is apt to bring out coffee and cake, while the two young children play in the next room.

But a conversation between Kahn and a visitor inevitably turns to war and peace.

Kahn insisted that he is not a ghoul. "If I say, for instance, that 10 million people will die under certain circumstances, rather than 20 million, some one always thinks I am saying 'ONLY 10 million.' It's like having a rich uncle and saying to

oretical wherewithal to bring about disarmament.

He likened the arms race to a game of chicken, the occasionally suicidal gamble indulged in by hot rodders. Two cars come at each other. The first driver to swerve aside is "chicken." "We have thrown away the steering wheel," Kahn believes. "We've erased the white line. We're not even sure what road we're on."

To hope for disarmament is one thing; to bank on it is another. He is inclined to think disarmament will come only after a very serious crisis—a state of affairs far more tense than today's—or an actual war.

There is always the chance of nuclear accident that sets off a duel of missiles or bombers or both.

This possibility, feared by most experts, might turn out to be a blessing, Kahn said. In a few sentences he set an imaginary situation in which the United States and the Soviet Union unwillingly begin tossing warheads at each other. Somehow both sides realize it is a mistake. They arrange a truce. The world wakes up the next morning, having lost a few cities, perhaps, and still teetering on the edge of total war.

"Do you think," Kahn asks,

government now has no plans for such far - fetched possibilities, Kahn said.

Again, his main theme: "We must be prepared, realistically, for anything." And then, in anticipation of an accusation that he is proposing preventive war, or a contrived "accident," he put in an immediate disclaimer: "This is not my problem. It is just an estimate. I may be wrong. Perhaps we will go on like this for 100 years. I don't think it will happen that way, though."

Christmas Joy

We join Santa in singing bright songs of cheer. May you have a joyous 'Christmas!

with severe criticism — a moral tract on mass murder," one critic calls it.

It is charged that his work tends to discourage disarmament and to make the prospect of nuclear war seem less dreadful than it is. Kahn is unhappy about this opposition, not because of the personal accusation that his is an outsized blood lust, but because some of his opponents would stifle his line of inquiry.

Face to face, it is hard to quarrel with this man. A lively sort with a Kris Kringle shape, he peers calmly from behind thick glasses, and speaking rapidly, makes a case that can best be summarized: Let us explore all facets of our problems of

Systems Division, the Mitre Corporation, the Martin Company and Stanford Research Institute.

The subjects include "command control systems," "national interest in international order" and "civil defense as related to overall strategy." Initial financing for Hudson came from advance payments on these contracts and a donation from a benefactor who prefers anonymity. As Hudson's operating head, Kahn received $26,000 a year, about the same salary he got from Rand.

What can a research group that now has just 15 staff members do for a giant like IBM that IBM cannot do for itself? For that matter, why does the

him, 'Uncle, when you die. . .' Of course, he cuts you out of his will right away. You've got to say, 'Uncle, God forbid, if you die. . .' I keep saying the equivalent of 'God forbid' and 'if' but some people ignore this."

He is frankly pessimistic about the prospect of negotiated disarmament because "there isn't enough good will around the conference table. Things aren't that simple."

Nevertheless, he thinks Washington must continue to seek an understanding with Moscow, and that organizations like Hudson should do what they can to provide the technological and the-

"that Kennedy and Khrushchev could go to their peoples the morning after and say, 'it was all a mistake. We'll go back to the way things were the day before yesterday?' Of course not. There would have to be a settlement. On that morning you could probably get signed any draft treaty that was ready."

Ugly as it is to contemplate, this sort of contingency thinking is being scouted and impressed on the White House and top American defense planners in Kahn's latest policy work for the government, the "diplomacy of the last stages of crisis."

One of our problems is that the

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BUFFALO EVENING NEWS Saturday, June 27, 1959 page A-2

Nuclear War Hearings Show Public Needs to Face Facts

Survival Is Granted, but Rate of Recovery Hinges on Readiness to Learn Basic Rules

By NAT S. FINNEY

Buffalo Evening News Bureau

WASHINGTON, June 27—The United States could survive the kind of nuclear attack Russia is now capable of making, but it could survive in better shape for quicker recovery if it psychologically acknowledged the danger and learned simple, grass roots things about survival.

This conclusion sums up results of the first unblinking public look the Federal Government has ever taken at nuclear war. A subcommittee of the Joint Congressional Committee on Atomic Energy headed by Rep. Holifield (D., Calif.) took this look in a week of public hearings.

Rep. Holifield closed the hearings Friday with a declaration that "the facts of nuclear war won't fade away because they are unpleasant," and that "each of us must accept a personal responsibility because nuclar war is a personal threat to our survival."

Libby's "Swan Song"

Dr. Kahn held that, despite such a blow, the nation could recuperate, although readjustments would take a long time and the country would have to operate on standards it would consider "impermissible" before the attack occurred.

The Rand Corp. analyst held that estimates of the amount of land that would be unusable were far too high because the country would put up with degrees of fallout contamination it might consider unthinkable before an attack.

Urges Wide Discussion

But Dr. Kahn warned that the country is psychologically unprepared to face a Russian threat of nuclear war. He praised the committee for its efforts to get the country to face up to the possibility it might have to take an enormous blow to preserve its independence.

"If you won't discuss it, you won't do it," is a safe rule of public psychology, Dr. Kahn maintained. He held that the possibility of nuclear war not

Compromise Bill Defers Tax Cuts Until Next Year

By the Associated Press

WASHINGTON, June 27 compromise tax bill holds pects of a cut next year i federal 10% tax on tele charges and in rail, bus an plane ticket taxes.

Senate and House conf Friday approved the co mise bill which continues K wartime corporate income excise tax rates for an year. These taxes drop to Korean levels at midnight day unless a new law is ena

The conferees sent back Senate and House a bill would, in its immediate e simply continue taxes w change until June 30, 1960. a decision on changing tax would again come before gress.

Fare-Tax Cut Proposed

Conferees abandoned S passed proposals which have: (1) repealed the 4% dividend income credit; (pealed the entire 10% com cations and passenger tra tation taxes; and (3) incr federal welfare assistance

"It may well be that the time has come in man's history when he must choose between the arms race and the human race," he declared.

Friday's hearings were, in a special way, the swan song of a member of the Atomic Energy Commission who came to the AEC when the thermonuclear bomb was born, and leaves it as new missile systems are changing the face of nuclear combat. He is Dr. Willard F. Libby.

Dr. Libby made his final session with the Joint Subcommittee the occasion for a last official effort to get the Government to give its full backing to a device he deeply believes could save the lives of millions if they had it in their homes.

only should be widely discussed, but that standards for what should be done after a nuclear attack should be discussed and established before any such attack can occur.

Dr. Kahn maintained, presumably on the basis of Rand Corp. studies, that the country has some time for frank discussion of nuclear war before Russia will be in a position to deliver such an attack as was assumed by the committee for its hearings.

QUIET BIRTHDAY FOR MISS KELLER

EASTON, Conn., June 27 (AP) —Helen Keller, deaf and blind

to the states by $142,000, year.

The House bill was limi continuation of the 52% t corporation income and p rates on automobiles, auto and accessories, cigarets, wine and beer.

The conferees proposed c in half the passenger trans tion tax effective June 30, provided Congress does no to continue the full rate then.

No Gas Tax Boost

And they agreed to the of the 10% communicatio as it applies to local charges, also effective Ju 1960. The tax on long-di phone tolls and other com

DAILY PRESS, Newport News, Va., Sun., July 1, 1962 3D

Provocative Book About Nuclear War

THINKINK ABOUT THE UNTHINKABLE, by Herman Kahn. New York: Horizon Press. 254 pages, $4.50.

Reviewed by Bill Amanna

x x x

Herman Kahn is a physicist who gained national prominence through his book "On Thermonuclear War," in which he described with dispassionate thoroughness what the U. S. could expect in the event of nuclear war. The book unleashed a heated debate over civil defense which is continued in Mr. Kahn's present volume.

The author's chief premise is that although "thermonuclear war may seem unthinkable, immoral, hideous or highly unlikely, it is not impossible. To act intelligently we must learn as much as we can about the risks."

How likely is accidental war? How can it be made less likely? What would conditions be if a nuclear attack leveled 50 American cities? How many American lives and European and Russian lives, would an American President risk by standing firm in differing types of crises? By starting a nuclear war?

Mr. Kahn doesn't stop there. He goes on to put his questions in even more concrete and hence more upsetting terms. He considers, for example, the defense of Europe. We have increased our non-nuclear forces to meet a possible Soviet conventional attack in Europe. The author notes our policy would be to initiate the use of nuclear weapons should conventional forces prove inadequate. So, whether we intend it or not, we may have obligated ourselves to

Some of Mr. Kahn's most interesting chapters deal with the so - called "war and peace" games. By this system, real and hypothetical situations are suggested. All steps in the "escalation ladder" are discussed. Suppose, for example, that 'A' has so many missiles. Suppose 'B' has so many missiles. Suppose 'A' attacks. Suppose 'B' attacks. With so many missiles. With this or that degree of accuracy. So many cities are hit. So many persons are killed. In a complex of situations, what are the alternatives?

The author's point is that we should think of these as not so many individual problems, but within the context of a broad national strategy. His concern is with getting these problems discussed in the open.

Mr. Kahn's continuation of the debate seems almost cer-

There are questions to be answered, Mr. Kahn insists, and he lists a few:

The Nation's Best Sellers

Best sellers of the week as compiled by Publishers' Weekly: The Book Industry Journal.

FICTION

1. SHIP OF FOOLS
By Katherine Anne Porter

go to all-out war.

MUST MAINTAIN PRETENSE

The President, Mr. Kahn holds, may conclude that even if he is not willing to initiate a war or limited reprisal that could easily develop into war, he must maintain a pretense of being willing. Perhaps the facade will work. After all, even if he is not willing, the Soviets cannot rely on this. And, withal, we may in fact do nothing ourselves; it may be forced on us or occur inadvertently.

tain to renew the controversy resulting from his earlier volume. Moreover, his views have added significance when one considers his position as a consultant to the Defense Department, the Office of Civil and Defense Mobilization and the Atomic Energy Commission.

This is a highly useful book. Although he raises problems that are not pleasant to think about, Mr. Kahn has performed an important service in this provocative book.

THE SUNDAY STAR
Washington, D. C.
June 24, 1962

Prophet of Changing Nuclear-War Policies

THINKING ABOUT THE UNTHINKABLE. By Herman Kahn. (Horizon Press; $3.50.)

America's nuclear-war polices have changed radically during the past year, and Herman Kahn has been the prophet of that change. The bible of the new and dominant nuclear school is his book, "On Thermonuclear War," which has sold an astonishing 30,000 copies since publication in 1960. That bible was written for the priesthood, however, and its great length and difficult new language has kept the broad public from understanding just what Mr. Kahn and his fellow thinkers about war are driving at.

This new and most welcome book, "Thinking About the Unthinkable," is designed by Mr. Kahn to do three things:

- First describe his basic ideas in more simple language.
- Second, tell about the strange techniques used by professional military analysts.
- And, third, stimulate more thinking about "unthinkable" modern war.

Someone Must Do It

Mr. Kahn, director of the Hudson Institute, is a happy extrovert who likes his work. This seems to infuriate a number of persons who attacked him personally after his first book for his failure to affect the long face of an undertaker. But Mr. Kahn points out that someone has to think about nuclear war just as someone has to think about cancer and polio. No rational person can fault him on his logic, though his ideas might sell better if he started each chapter with, "Heaven forbid it should happen, Western powers make sweeping concessions there and points out, truthfully, that there is no way NATO forces can save the city without starting a nuclear war that could well ruin the United States. Mr. Kennedy replies with the threat of a doubled or quadrupled defense budget. "Such an acceleration of the arms race, dangerous as it is, could still be less dangerous (for America) than either an attack or an accommodation," the President says. Mr. Khrushchev will either have to fall behind in the race or damage his tight economy. The threat makes him back down.

In a small way this was done last year, but Mr. Kahn's scenario is, in effect, an outline of a bolder plan for handling a future life-or-death crisis without the war Mr. Kahn—and the rest of us—hopes to avoid.

This is an important book and an excellent opportunity to see one of the nuclear age's most influential minds in action.

—RICHARD FRYKLUND.

Other Books

GENERAL

A CRUISING GUIDE TO THE CHESAPEAKE. (Including the Passages from Long Island Sound along the New Jersey Coast and Inland Waterway.) By Fessenden S. Blanchard. (Dodd, Mead; $6.50.) (Revised Edition.)

THE THOMAS WOLFE READER. Selected with an introduction by C. Hugh Holman. (Scribners; $7.50.)

but. . . ."

The techniques of strategic analysis are the most fascinating part of the book. He gives many examples of mental gymnastics such as "war and peace games," "scenarios" and "abstract models" which simply serve to force analysts to think of all possible dangers and opportunities in various strategies and methods of crisis management. These "sophistications," which could be overlooked in the old days without fear of losing a civilization, are regarded by the administration as necessities in the nuclear age.

Future Ultimatum

One rather casually presented "scenario" is alone worth the price of the book. This is a brief story about one way in which some future ultimatum over Berlin might be handled. In Mr. Kahn's little drama, Chairman Khrushchev tells President Kennedy that he will seize West Berlin unless the

All four of Wolfe's novels are represented in order of publication with several fully self-contained passages from each and included also are eight short stories and in its entirety "The Story of a Novel."

DIARY OF THE CIVIL WAR, 1860-1865. By George Tem-

The Sunday Star

WEEKLY BOOK SURVEY

The Sunday Star has arranged with of the leading book sellers of Washin and suburban areas to report each the books which sell best as a guid what Washington is reading. The n bers represent the rank of each among best sellers at the store na

For Week Ending June 22

FICTION
1. "Ship of Fools," Porter
2. "Youngblood Hawke," Wouk
3. "Dearly Beloved," Lindbergh
4. "Bull From the Sea," Renault
5. "The Reivers," Faulkner
6. "Agony and Ecstasy," Stone
NONFICTION

Friday, October 2, 1959 Appleton Post-Crescent A3

Governmental Responsibility

Evacuation, Shelters Two Ways to Save Lives During Nuclear Attack

Madison — There are only two ways to save lives in a possible nuclear war—evacuation or in shelters, about 100 men and women at a non-military defense seminar, sponsored by the Carnegie foundation, were told here Thursday.

shelters is unknown, but USSR propaganda indicates a shelter program is underway, he said.

It is no longer possible to clearly distinguish between war and peace, with the Russo-U. S. cold war and local military actions obscuring a clear definition, Devaney said. In this way, non-military defense, with ordinary defense, becomes a continuing effort, he added.

Non-military defense is the application and utilization of resources — fundamentally in three areas to benefit the civilian population, he explained. Under resource manage-

PASSIVE CHURCH NOT FOR ME, SAYS Mgr KENT

By GUY RAIS

MONSIGNOR BRUCE KENT general secretary of the Campaign for Nuclear Disarmament, promised yesterday to strive for peace for the rest of his life.

But he side-stepped the issue of whether he would defy the Roman Catholic Church.

"I am not going to speculate on impossibilities that have not appeared," he told a radio interviewer in London.

In an interview on the London Broadcasting Company, Mgr Kent denied that the C N D movement was Communist-infiltrated.

"There are some 250,000 members of C N D and only 19,000 Communists in the country, so their numbers are insignificant. It is the policies that count," he said.

Questioned about the role of the Church and C N D, he said: "If the Church is busy sitting in its sacristies counting its rosary beads and ignoring the great problems of the world, then I don't think it is the right church for me."

Asked if there was any chance of him giving up C N D, he said: "I am very committed to peace work and I am going to stay with peace work for the rest of my life."

Pressed to explain whether this would mean he would remain with C N D if his church superiors told him to give it up, Mgr Kent said: "I did not say that.

"I said the issue of working for peace is going to be with me all my working life. The other issue has not arisen, and I don't think it will."

Too political

But Mgr George Leonard, personal assistant to Cardinal Hume, Roman Catholic Archbishop of Westminster, hinted that the cardinal might consider C N D too political for Mgr Kent to lead.

Asked during an interview on London Weekend television if the cardinal would be pre-

RUSSIANS REJECT PETITION

ORGANISERS of the Women of Families for Defence, a new group which supports a strong defence for Britain and multilateral disarmament, protested yesterday at the refusal of the Soviet Embassy in London to accept a petition signed by 13,000 supporters.

The petition urging the Russians to response to the West's proposals for "balanced and verifiable disarmament," was taken by the group's leader, Lady Olga Maitland, to the embassy before a rally in Trafalgar Square.

But she told a gathering of about 200 supporters in the rain-soaked square: "We took our petition in a box to the embassy and explained who we were and what it contained. We were told by avoice on the inter-com that the embassy did not accept petitions, but we could come back and talk to them.

"I put the box at the entrance at the gate together with symbolic red tulips in memory of those who died in the last war, and a reminder to the Soviets that we are determined to maintain freedom in a sensible and responsible manner as we have done for the past 38 years.

"When we reached the road outside, we were told by police that they had received a complaint about litter at the Embassy gate."

Lady Olga added indig-

C N D to visit Soviet-backed peace meeting

By CHARLES LAURENCE

THE Campaign for Nuclear Disarmament is to send two members to the Soviet-sponsored World Peace Council in Prague next month, it has been revealed after a week of controversy.

The pair have not yet been named and C N D spokesmen have denied that they have been duped by the Russian propaganda machine. The C N D members will be going as "observers" rather than delegates.

Two officials of the Quakers, who are closely involved with C N D, will also be attending the meeting.

The officials, from the Quaker Peace and Service department at Friends House headquarters in London, will also be travelling as observers.

A total of 61 British delegates will be going to the meeting, which the organisers are calling the Council for Peace and Life. They are being selected by the British Peace Assembly, the London arm of the World Peace Council. Mr Arthur Scargill, the miners' leader, is sponsoring the organising committee.

Front organisation

The Quakers, the Religious Society of Friends, were caught up in controversy when it was disclosed that last year they were involved with a "red carpet" trip to Moscow during which they had been impressed with the "depth and sincerity" of the Russians' desire for peace.

The World Peace Council is generally considered a front organisation, funded from Moscow, which attempts to influence Western peace movements through conferences and propaganda.

A Friends House spokesman said: "I think we would be keen to keep our distance. We would not send delegates to anything to do with the World Peace Council."

The Quakers have pursued peace policies since their foundation in 1660. Most of the 20,000 British Quakers are affiliated or individual members of C N D as well as running their own peace groups.



Yorkshire ex-Servicemen goose-stepping in theatrical Soviet uniforms outside Sheffield Town Hall yesterday as a protest against the flying of the Red Flag by the Left-wing city council to mark May Day.

May Day protest at 'looney' Left's Red flag

By JOHN WILLIAMS

TWO former naval men protested yesterday at the raising of the Red Flag to mark May Day

nantly: "They called out petition 'litter" and we were told we must remove it. I went back and collected the petition. It shows the Russian intransigence, but they won't get away with it. I promise that Andropov will receive the petition in the Kremlin by post."

MAKING THEIR PEACE

Peace campers outside the American radio relay station at Menwith Hill, near Harrogate, Yorks, at the weekend, received a surprise invitation to escape from torrential rain and be guests of the base. They spent an hour drinking coffee and talking to American staff.

pared to ask Mgr Kent to resign as general secretary if CND became too political, Mgr Leonard said: "Of course, that's the whole point of the cardinal expressing his reservation at this point.

"I think you could take it that he would follow his conscience and not be deterred by any sort of adverse reaction."

Mgr Leonard made it clear that in the cardinal's view, CND was very close to becoming too political for Mgr Kent to lead.

The battle over control of CND began four days ago, when Cardinal Hume warned Mgr Kent there might be a conflict with his role as a priest if CND became too political.

GREENHAM ROW OVER BABIES

Women peace protesters were criticised last night after they carried babies and toddlers over rolls of barbed wire into the Greenham Common base during a May Day invasion. There were angry scenes as two Ministry of Defence police struggled to stop them swarming through a tiny gap they had made in the perimeter fence.

The local MP, Mr Michael McNair-Wilson, Conservative member for Newbury, said: "How appallingly irresponsible for a mother to use her child in a protest where somebody could get hurt.

in Sheffield by goose-stepping outside the town hall wearing hired Russian uniforms.

The tradition of raising the Red Flag was begun two years ago by the ultra Left-wing council.

But last year the city's Socialists abandoned the ceremony because of the Falklands crisis.

Yesterday, the flag was unfurled in what Councillor Irvine Patnick, leader of the Conservatives on South Yorkshire's County Council, described as another "looney scheme."

The two men in uniform, who would not identify themselves, marched down the town hall steps as Mr Patnick received a mock certificate from Major John Taylor, chairman of the local Ex-Servicemen's organisations.

The certificate declared that Sheffield was accepted into the Soviet Socialist Republic "for driving business out of the city, brainwashing the young, giving Mr Arthur Scargill 'political asylum,' assisting the Marxist creed and being without defence."

Other "looney" schemes include:

Banning Kit Kat biscuits from the City hall canteen, because the makers have links with South Africa.

On-the-spot MOT testing for children's push chairs and renaming streets after Socialist leaders.

'Sick of it all'

As demonstrators unfurled the Union flag Mr Patnick said: "We do not want the Red Flag and people are pig-sick of it all and we felt some protest was necessary.

"I was asked to come here by people who organised this spontaneously. In Sheffield, we have a Communist peace officer, a treaty with Donetz, and Marxist street names."

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National Advertising Representatives: Cresmer, Woodward, O'Mara and Ormsbee, Inc.

U. S. COULD LOSE EDGE IN NUCLEAR POWER BALANCE

With the election over, the President and his defense secretary must now make some hard military research-spending decisions.

The nuclear balance of power between the United States and the Soviet Union is so unstable, some key Pentagon scientists say privately, that it could be upset quickly by three Soviet research breakthroughs:

—Development of an effective antimissile-missile network capable of handling massive attacks of extremely sophisticated ICBMs with a high rate of kill.

The concept these men have in mind would be long jumps beyond Nike-X. The antimissile-missile system they envisage might in fact clobber ICBMs a thousand or more miles from target or even before they were airborne.

The Russians are experimenting heavily with electromagnetic pulse and radiation from strong nuclear explosions for killing missiles in

The Russians have been putting large sums into jamming and other electronic countermeasures. They have assigned large numbers of scientists to research on a series of wayout blue sky communications methods not susceptible to any known interference.

The worried U. S. scientists are not comforted by the thought that the United States now heavily outweighs the Soviet Union in nuclear weapons.

Unclassified studies include estimates that the United States now has more than 50,000 nuclear weapons, compared with 5,000 to 8,000 in Soviet hands.

But these U. S. research men point out that regardless of this 1964 U. S. supremacy, and sizable American research and development expenditures, U. S. miscalculation on what research leads to push heavily, or better Russian guesses, or Russian

explosions for killing missiles in their silos before they are fired.

—Development of a family of ICBMs so accurate that more than half of those fired would hit within 500 yards of target.

The extremely large boosters available to the Russians make possible their use of larger, more reliable guidance systems. Russian technical literature indicates the Reds are putting a sizable chunk of top caliber manpower into improving their electronics and guidance.

Some scientists here predict this super accuracy guidance before 1972.

—Development of a military world-wide communications system invulnerable to electronic interference (electronic warfare countermeasures) or to radiation from nuclear blasts.

luck, or more Russian funds could put the Reds ahead in one or all of these three key research fields.

There is deep concern here that the Russians are putting more money and effort in these key areas than is the United States.

U. S. research has gone all-out on "penetration aids" for ICBMs. Top Defense Department men are convinced the United States can devise ways to get missiles through, regardless of Russian improvements in antimissile defense.

But despite this confidence, the Russians, if their research goes well, might be able to knock out U. S. missiles before they even got out of their silos. Then penetration aids would be of no value.

Or the Reds could knock out U. S. communications.

Page 2A The Kansas City Star, Friday, January 21, 1983 ★

Critics say U.S. has plans to win a nuclear war

By Tim Ahern
Associated Press writer

Washington—Ever since President Reagan took office, his administration has been pestered by the question of whether it is more willing than past administrations to fight a nuclear war.

Critics contend that his advisers have drafted a plan to win a nuclear war with the Soviet Union. Public opinion polls have repeatedly said that many Americans are concerned about his willingness to use nuclear weapons.

Analysis

Administration officials deny that premise.

"There is nothing new about our policy," Defense Secretary Caspar Weinberger wrote last year in a letter to dozens of newspapers.

U.S. policy on use of atomic weapons is spelled out in several highly classified documents. None has been released publicly and administration officials refuse to even acknowledge the existence of one.

But a year-old document drafted to provide background on military spending requests has been

> **"Everybody's going to make it if there are enough shovels to go around."**
>
> —T.K. Jones, deputy undersecretary of Defense

tration as planning to win a "protracted nuclear war."

Several officials familiar with U.S. policy—each of whom talked on the condition that he not be identified—agreed that one problem is a public perception that the administration is more ready than past administrations to use the weapons. The officials said the belief arose largely from injudicious public statements by officials.

T.K. Jones, deputy undersecretary of Defense, told the *Los Angeles Times* last year that the United States could recover from an atomic war in two to four years. "Everybody's going to make it if there are enough shovels to go around," he said, explaining the shovels were needed to dig primitive civil defense shel-

the Soviet Union to seek earliest termination of hostilities on terms favorable to the United States," according to published reports.

That philosophy was attacked by those in the nuclear freeze movement as meaning the Reagan administration thought a nuclear war was "winnable." Such a view, according to critics, makes atomic war more likely.

The Los Angeles Times reported in August that Mr. Reagan had approved National Security Decision Direction 13, which directed the Pentagon to create a "master acquisition plan" to develop nuclear weapons to carry out the U.S. policy. The story said the document contemplates the possibility that a nuclear war could last up to six months.

The Reagan administration has

new about our policy. Our entire strategy aims to deter war of all kinds, but most particularly to deter nuclear war."

One official said the word "prevail" means "denial of victory to the Soviets in the sense that our institutions would remain in some form to permit us to rebuild. It doesn't mean victory in the sense of defeating the Soviets and then occupying their country."

American nuclear policy has always been based upon deterrence. Last Nov. 22 Mr. Reagan defined deterrence as "a matter of others knowing that starting a conflict would be more costly to them than anything they might hope to gain."

The American philosophy has been summed up as "mutual assured destruction"—the so-called "MAD" policy. This holds that the Soviets wouldn't attack because they know they would suffer terrible destruction from a U.S. counterattack.

Officials familiar with U.S. policy say that Mr. Reagan's policy is similar to the "flexible response" doctrine adopted by former President Richard M. Nixon in 1974. That policy moves away from "MAD" by giving the president a range of nuclear options

reported on several occasions. The first report cropped up in May when newspapers printed excerpts and it appeared again as recently as last weekend when a wire service carried stories saying it had seen the whole text.

On Monday a Pentagon spokesman, Benjamin Welles, asserted again that it is "completely inaccurate" to portray the administ-

ters.

The debate began in May when *The New York Times* printed excerpts of the document entitled "Fiscal 1984-1988 Defense Guidance."

The document says that "should deterrence fail and strategic nuclear war with the U.S.S.R. occur, the United States must prevail and be able to force

never publicly confirmed the existence of the directive.

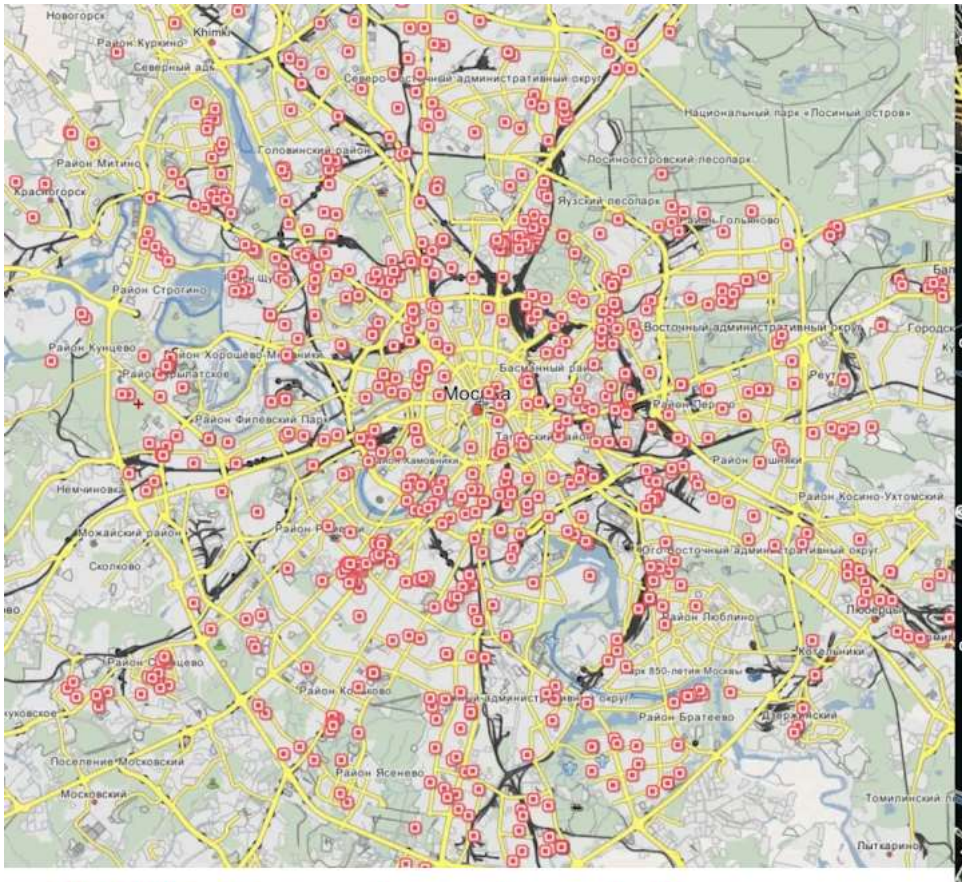
In his August letter to more than 75 newspapers, Mr. Weinberger complained about "completely inaccurate" reports "that portray this administration as planning to wage protracted nuclear war or seeking to acquire a nuclear war-fighting capability."

He added: "There is nothing

range of nuclear options.

Until then much of American policy rested on the belief that a nuclear attack would mean an all-out response using the entire range of American weapons.

In 1980 former President Jimmy Carter signed Presidential Directive 59, which followed the guidelines of the 1974 decision by making Soviet military capabilities the target.



ABOVE: Moscow's nuclear shelters map
RIGHT: St Petersburg's nuclear shelters map

https://www.bloomberg.com/news/articles/2022-11-10/russia-quietly-checks-its-bomb-shelters-as-war-fears-spreadhttps://www.bloomberg.com/news/articles/2022-11-10/russia-quietly-checks-its-bomb-shelters-as-war-fears-spread

By Bloomberg News
10 November 2022 at 15:28 GMT
In the latest reflection of the Kremlin's expanding war effort, bomb shelters across Russia are being brought back to life after more than three decades of neglect since the end of the Cold War.

State workers are quietly checking basements and other protected facilities, repairing and cleaning installations not used since the Soviet era, according to people familiar with the efforts.

https://www.mirror.co.uk/news/world-news/bomb-shelters-readied-moscow-russians-28684887https://www.mirror.co.uk/news/world-news/bomb-shelters-readied-moscow-russians-28684887

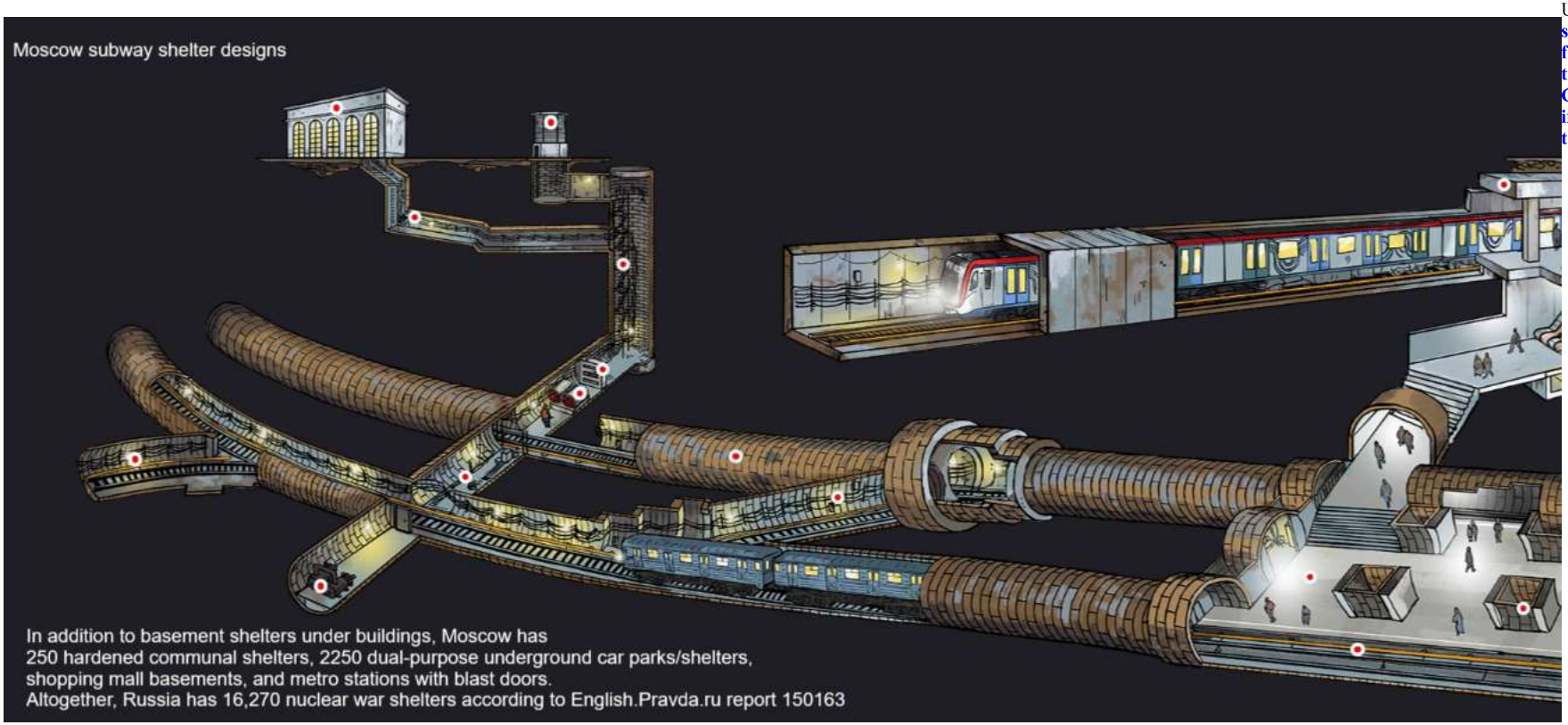
ByWill StewartRussia CorrespondentGraeme MurrayNews Reporter
16:41, 8 Dec 2022ByWill StewartRussia CorrespondentGraeme MurrayNews Reporter

At least 60 bomb shelters have been equipped - often underground car parks - in Moscow, say reports.

Inspections are underway of potential shelters in the city, reported iStories and Moskvich magazine.

https://www.rbth.com/lifestyle/329500-survive-nuclear-warhttps://www.rbth.com/lifestyle/329500-survive-nuclear-wa

It is not known exactly how many bomb shelters there are in Moscow. Moslenta puts the figure somewhere between 5-7,((the inevitable legacy of the Cold War, when Soviet citizens expecting WWIII any second). They are generally located in basements of residential buildings or in separate undergrou rooms.

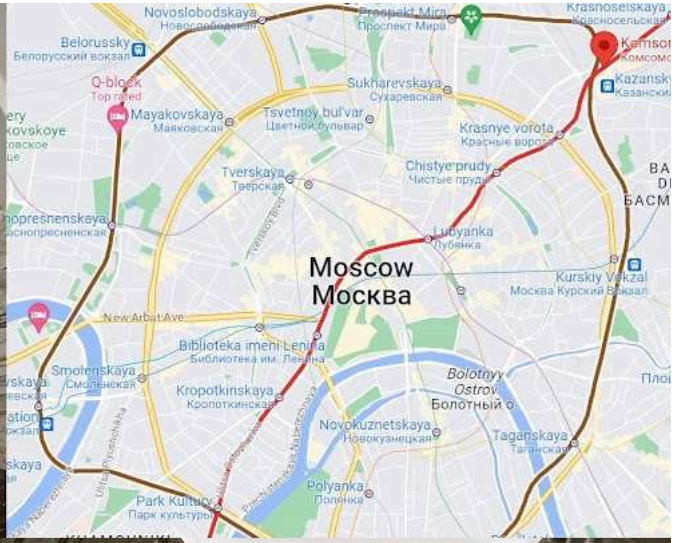


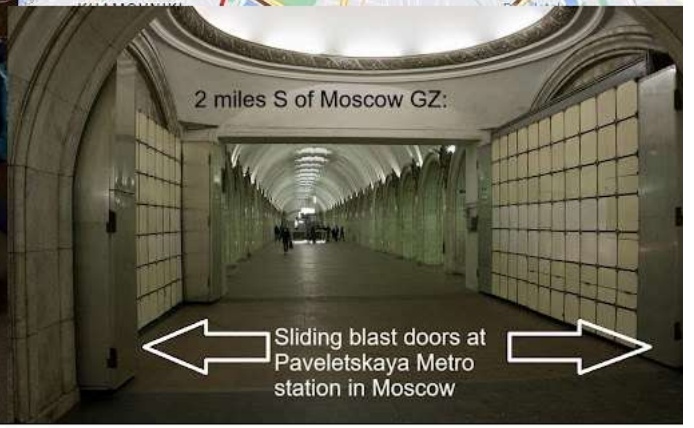
Unofficial Russian **video on the secret Russian nuclear shelters from Russian Urban Exploration, titled "Проникли на секретный Спецобъект Метро!" = "We infiltrated a secret special facility of the Metro!"**:

Проникли на секретный Спецобъект Метро! ФВУ

Диггеры залезли в Бункер Военного Завода! Нашли Ящ...









LEFT: Mayakovskaya blast door

http://v2.travelark.org/travel-blog-entry/joelmeeker/42/1503596534

It's a bit surprising that this omits the fact that the Moscow Metro is a nuclear bomb shelter. There are huge blast doors everywhere and at many stations it's significantly deeper than Paris of New York.It's a bit surprising that this omits the fact that the Moscow Metro is a nuclear bomb shelter. There are huge blast doors everywhere and at many stations it's significantly deeper than Paris of New York.

- https://news.ycombinator.com/item?id=27264521https://news.ycombinator.com/item?id=27264521







Гермозатвор

Как работает гермозатвор в метро. Станция "Универси...

Как работают Эскалаторы и Гермозатвор Метро! Изнут...

Диггеры Нашли Секретный Объект СССР! Подземная Л...

ABOVE: Moscow Metro and Metro-2 (secret nuclear subway) horizonially swinging blast doors take only 70 seconds to shut, whereas their vertically rising blast doors take 160 seconds to shut; both times are however far shorter than the arrival time of Western ICBMs or even SLBMs which take 15-30 minutes by which time the Russian shelters are sealed from blast and radiation! In times of nuclear crisis, Russia planned to evacuate from cities those who could not be sheltered, and for the remainder to be based in shelters (similarly to the WWII British situation, when people slept in shelters of one kind or another when there was a large risk of being bombed without notice, particularly in supersonic V2 missile attacks where little warning time was available).

Saturday, September 30, 1978, The Evening Sentinel, Carlisle, Pa. — 15

Need shelter for fallout?

By DONALD C. BROWN JR.
United Press International

SOURCES SAY the Russians have built hardened bomb shelters under most large apartment buildings in Moscow, Leningrad and Kiev and have a contingency plan to evacuate the population of these cities to collective farms within 72 hours.

The Soviet civil defense system even includes an estimated 100 hours of instruction for Soviet school children on the effects of nuclear weapons and civil defense procedures.

But while American civil defense officials are pleased with the new attention their program is receiving from the Carter administration, not everyone believes it is necessary or wise to increase nuclear preparedness.

Critics claim the United States and the Soviet Union, with

Critics claim the United States and the Soviet Union, with their nuclear arsenals, have "assured mutual destruction" and no adequate protection is possible.

Other skeptics say new emphasis on civil defense would mean a return to the atomic fears of the 1950s and 60s and increase the global tension that could actually lead to a nuclear war.


21.11.2011


08.12.2011




14.12.2011





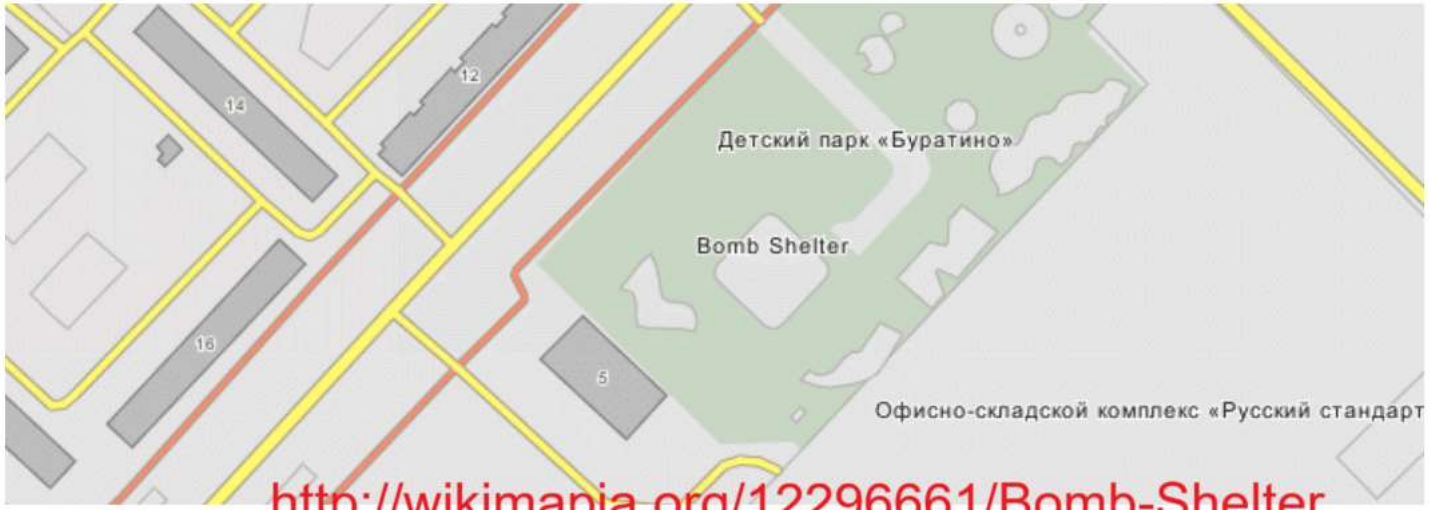
Moscow nuclear shelter

Nearby cities:

Coordinates: 55°38'29"N 37°22'12"E

http://wikimapia.org/16031767/Bomb-Shelterhttp://wikimapia.org/16031767/Bomb-Shelter





http://wikimapia.org/12296661/Bomb-Shelter
Bomb Shelter (Moscow) RUSSIA

Nearby cities:

Coordinates: 55°38'9"N 37°21'49"E


9А


№ 016407-77
ГУП города Москвы
“Специальное предприятие
при Правительстве Москвы”
9А




Bomb Shelter
Школа № 1467



Nearby cities:

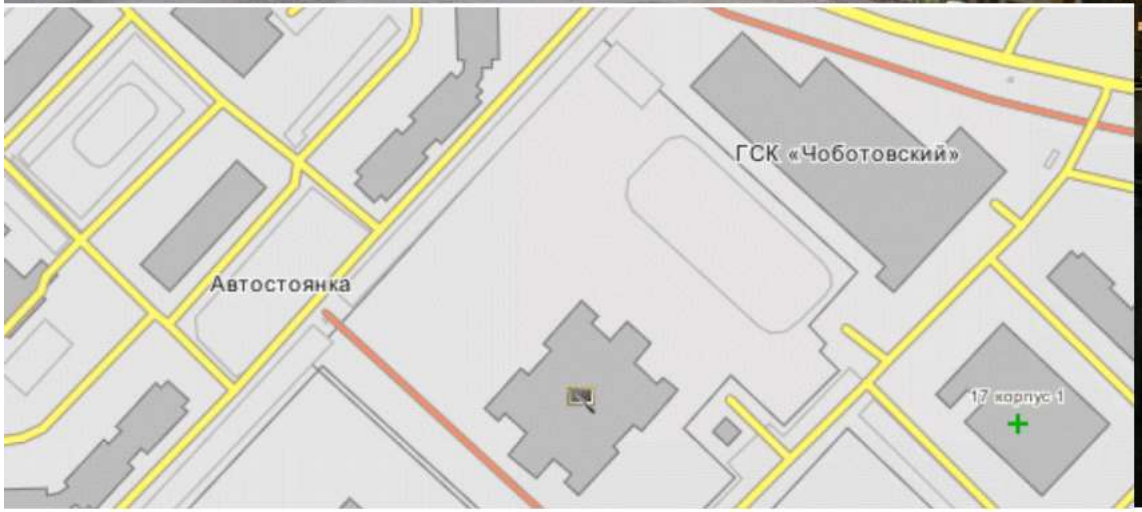
Coordinates: 55°38'23"N 37°20'54"E

Moscow nuclear shelter







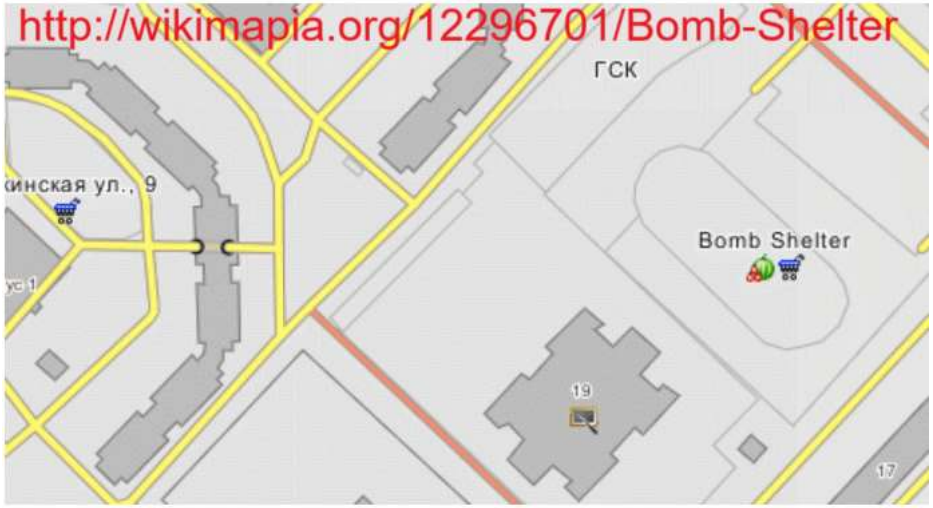


Nearby cities:

Coordinates: 55°38'44"N 37°20'46"E

Moscow nuclear shelter http://wikimapia.org/21940941/Bomb-Shelter





Nearby cities: Moscow nuclear shelter
Coordinates: 55°38'35"N 37°20'32"E

fCo2fnIEVVDG-6K0Kwk9cik87id46Qw5l0qJSBtQ/s1600/Moscow%20bomb%20shelter6.png"/>





MOSCOW'S NUCLEAR BLAST DOORS ⇧ MOSCOW'S NUCLEAR BLAST DOORS ⇧





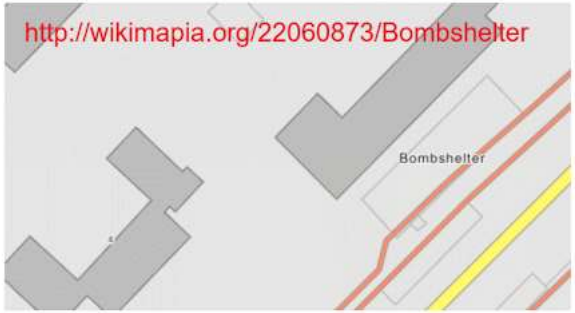
Bombshelter (Moscow)

Russia / Moscow / Moscow

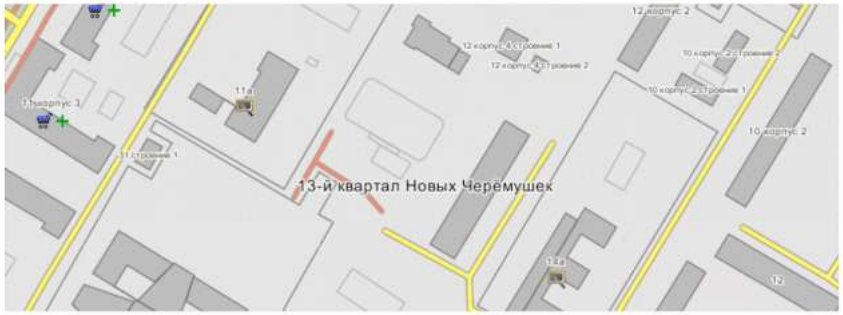
Secret Moscow shelters (no photos available) indicated on leaked plans



Nearby cities: http://wikimapia.org/22060790/Bombshelter
Coordinates: 55°43'29"N 37°31'49"E



Nearby cities:
Coordinates: 55°43'32"N 37°31'57"E



Nearby cities: http://wikimapia.org/4960864/School-bombproof-shelter
Coordinates: 55°41'8"N 37°35'14"E



Nearby cities:
Coordinates: 55°46'30"N 37°35'35"E



Bomb Shelters Moscow – St. Petersburg Published https://cybershafarat.com/2022/02/19/bomb-shelters-moscow-st-petersburg-published/

https://novayagazeta.eu/articles/2022/12/15/shelters-to-be-set-up-in-moscow-regions-apartment-blocks-malls-en-news

NEWS
SOCIETY
Shelters to be set up in Moscow region's apartment blocks, malls

02:42 PM, 15 December 2022

Moscow region authorities will organise shelters in apartment blocks and malls in the region, regional official Sergey Poletykin said at a Moscow Region Duma (parliament) meeting



Niels Groeneveld
@nigroeneveld

A map of bomb shelters in Moscow released by Russian Telegram channels #mobilization #osint #russia



https://twitter.com/nigroeneveld/status/1575131055258464



According to him, shelters in shopping centres and high-rise apartment buildings provid safety for up to 15 million people. He also said that the authorities decided against hang street signs with shelter addresses and directions “to avoid rousing people”.

In November, signs pointing to the nearest shelters were placed on more than 3,000 buildings in Novokuznetsk. The shelters are mainly placed in basements of apartment blocks.Moreover, Deputy Mayor of Belgorod Valentin Demidov promised to publish an interactive shelter map and hang signs around the city, indicating the nearest shelters.



Double blast doors protect Moscow nuclear war shelter

SOURCE:
https://www.moscowtimes.ru/2022/1 1/v-moskve-nachali-gotovit-ubezhisch na-sluchai-yadernoi-voini-a25925

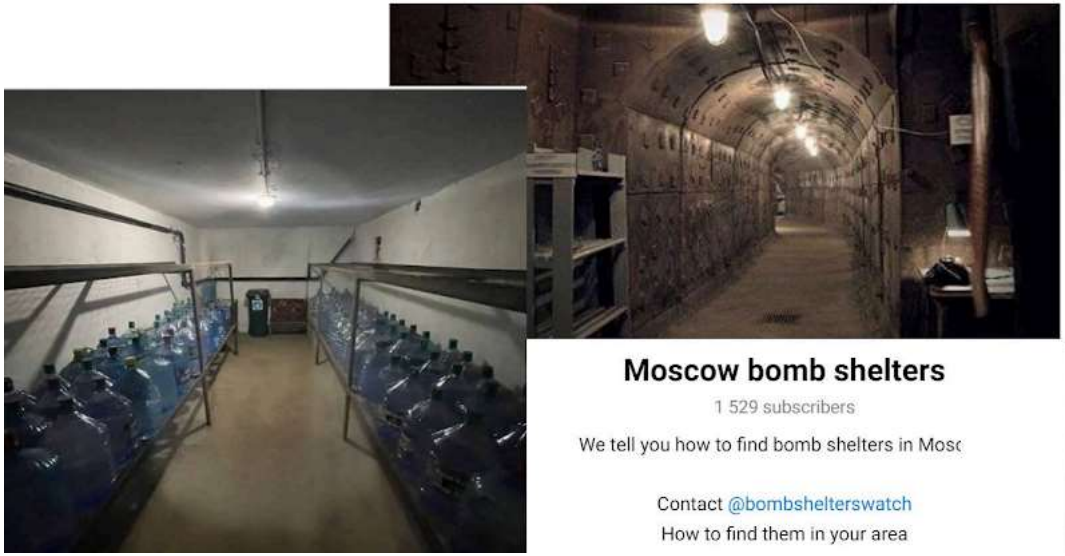
"Moscow begins preparing shelters in case of a nuclear war

"The authorities of Moscow have take up the equipment of bomb shelters, including anti-radiation ones, which a designed in case of a nuclear war. In Khamovniki, 30 shelters have already been prepared, and in one of the metropolitan districts, about 900 shelt are being actively prepared, Baza writ citing its sources."





Entrance to Russian thermonuclear bomb shelter in Moscow disguised as entrance to underground car park. Source TASS: 19536579



Moscow bomb shelters

1 529 subscribers

We tell you how to find bomb shelters in Mosc

Contact @bombshelterswatch

How to find them in your area



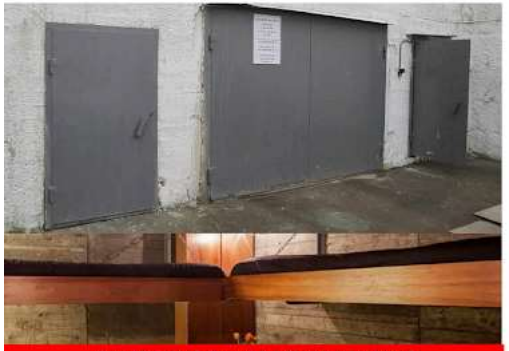




Bunker-42, underground Red Carpet secret military facility, Moscow.

This Soviet bunker was built 65 meters beneath Moscow in 1951 and finished in 1956. In the case of a nuclear attack around 600 people could take shelter for 30 days, thanks to the bunker's stockpile of food, medicine and fuel. Workers were able to commute to the complex by using a secret midnight train that ran from Taganskaya metro station.

NEWS https://www.mirror.co.uk/news/world-news/wealthy-russians-scramble-build-nuclear-28271460











Bunker 703 in central Moscow. Location: 2-y Novokuznetskiy Ln., 14/1, Moscow 115184 Russia

42 metres deep, built 1961 with 10 ton nuclear test proved blast doors.

Bunker-703 – Moscow, Russia







Photos by Moscow construction worker Mikhail Bratza: Moscow's Site 1 nuclear bunker has two-foot-thick steel reinforced doors, 75 toilets and bathroom capacity for 200 people to wash at once. Russian bunker 650-feet underground holds 2,700 Moscow people in a nuclear attack.

RIGHT: transparent inner panel on a blast door, showing internal mechanism

SOURCE: https://www.thesun.co.uk/news/20144544/doomsday-bunker-frenzy-russians-shelters-nuclear-war/



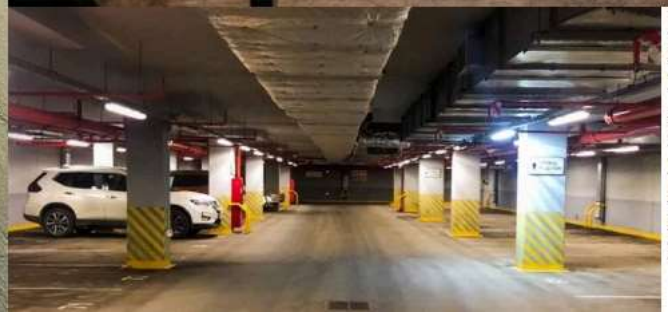
Double blast doors protecting Moscow nuclear war shelter. Moscow has 250 hardened communal shelters, plus another 2,250 quickly utilizable underground car parks, shopping and metro stations. Russia has 16,270 bomb shelters remaining from the USSR era.
https://english.pravda.ru/news/society/150163-moscow_bomb_shelters/











Kremlin ordered to prepare bomb shelters throughout Russia - https://newsonlineread.com/and-they-started-with-kyiv-in-3-days-the-kremlin-ordered-to-prepare-bomb-shelters-throughout-russia/



SOURCE: Bomb shelters readied in Moscow - defenceshttps://www.mirror.co.uk/news/world-news/bomb-shelters-readied-moscow-russians-28684887



exit/air vent of basement shelter

RUSSIAN CIVIL DEFENSE POSTERS SHOWING DOUBLE BLAST PRESSURE DOORS AT MAIN AND ALSO EMERGENCY EXITS, INDICATING VERY HARD NUCLEAR TEST PROVEN SHELTERS DESIGNS



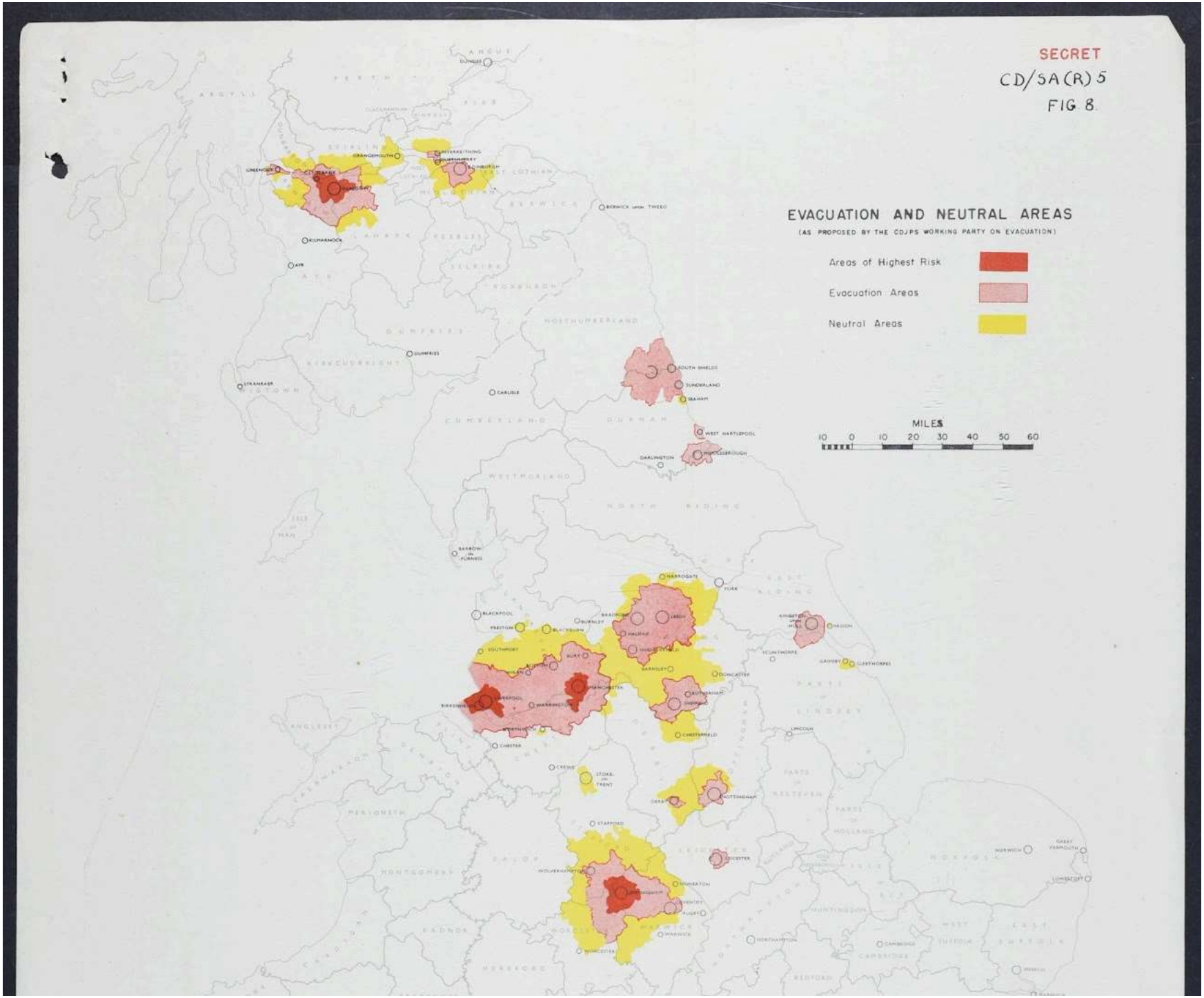


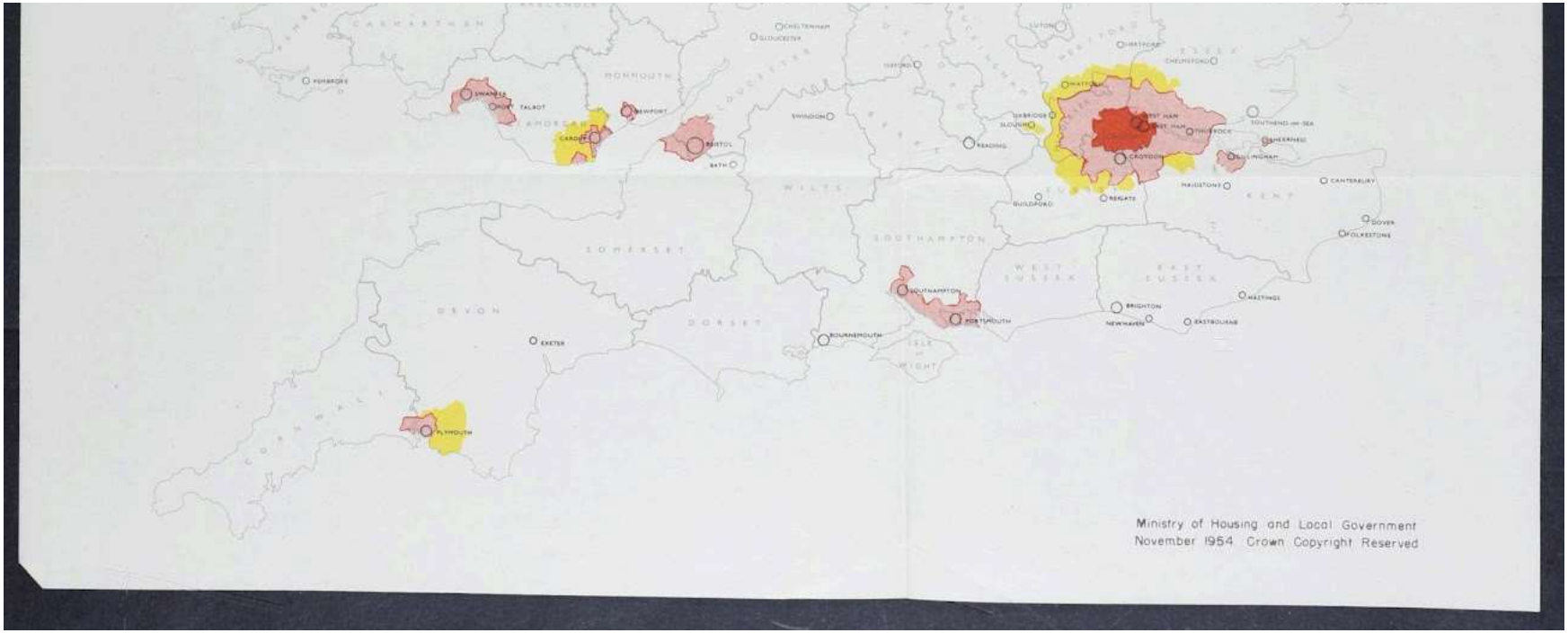
ABOVE: **originally SECRET diagrams showing the immense casualty reductions for simple shelters and local (not long distance as in 1939) evacuation, from a UK Home Office Scientific Advisers' Branch report CD/SA 72 (UK National Archives document reference HO 225/72), "Casualty estimates for ground burst 10 megaton bombs", which exposed the truth behind UK Cold War civil defence (contrary to Russian propaganda against UK defence, which still falsely claims there was no scientific basis for anything, playing on the fact the data was classified SECRET). Evacuation plus shelter eliminates huge casualties for limited attacks; notice that for the 10 megaton bombs (more than 20 times the typical yield of today's MIRV compact warheads!), you need 20 weapons, i.e. a total of 10 x 20 = 200 megatons, for 1 million killed, if civil defence is in place for 45% of people to evacuate a city and the rest to take shelter. Under civil defence, therefore, you get 1 million killed per 200 megatons. This proves that civil defence work to make deterrence more credible in Russian eyes. For a discussion of the anti-civil defence propaganda scam in the West led by Russian agents for Russian advantage in the new cold war, just read posts on this blog started in 2006 when Putin's influence became clear. You can read the full PDF by clicking the link here.**
Or see the files **here**.

SECRET

CD/SA(R)5

FIG 8.




Ministry of Housing and Local Government
November 1954 Crown Copyright Reserved

SECRET U.K. EYES ONLY

TOTAL CASUALTIES FOR DIFFERENT EVACUATION POLICIES

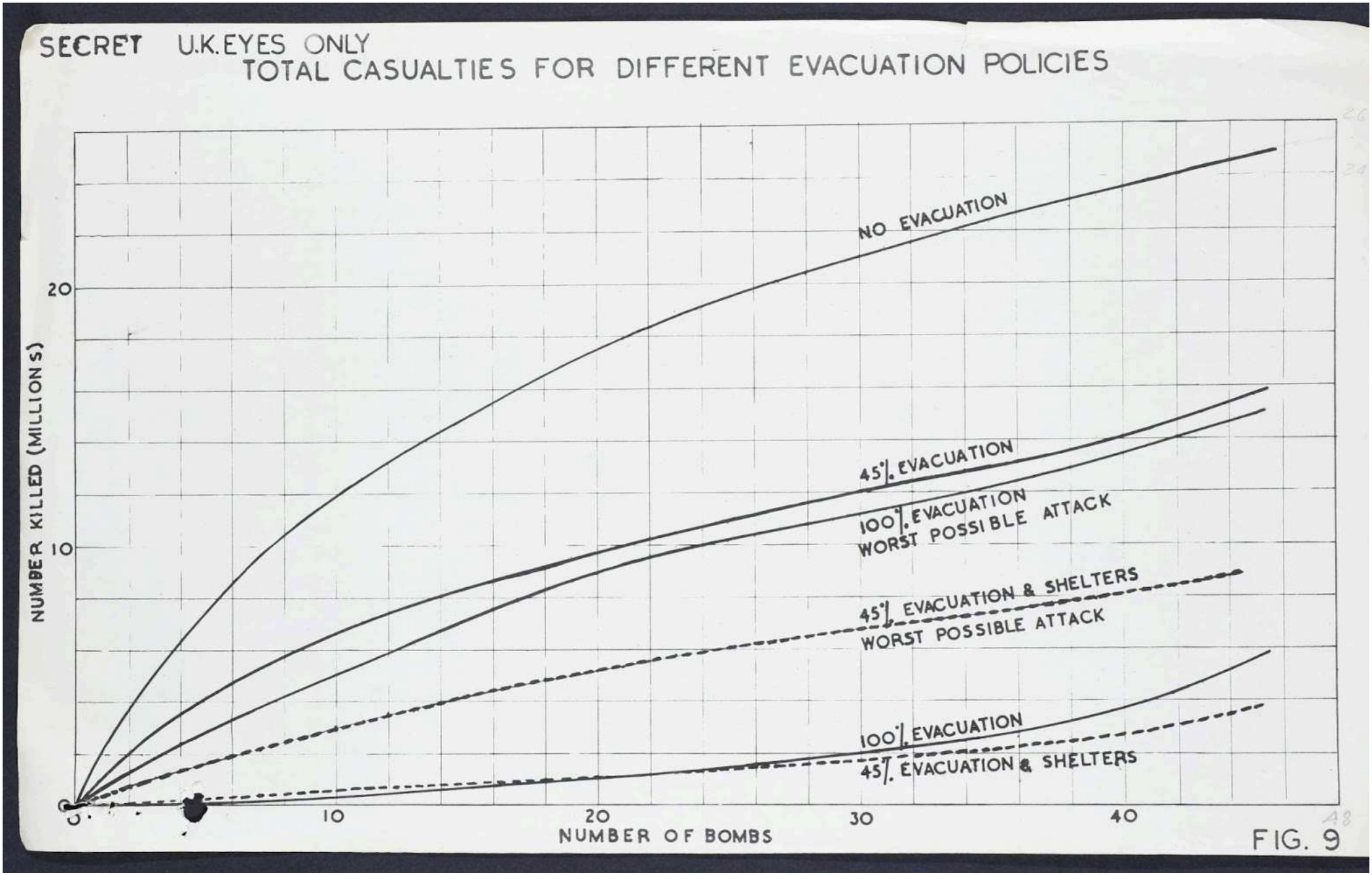


FIG. 9

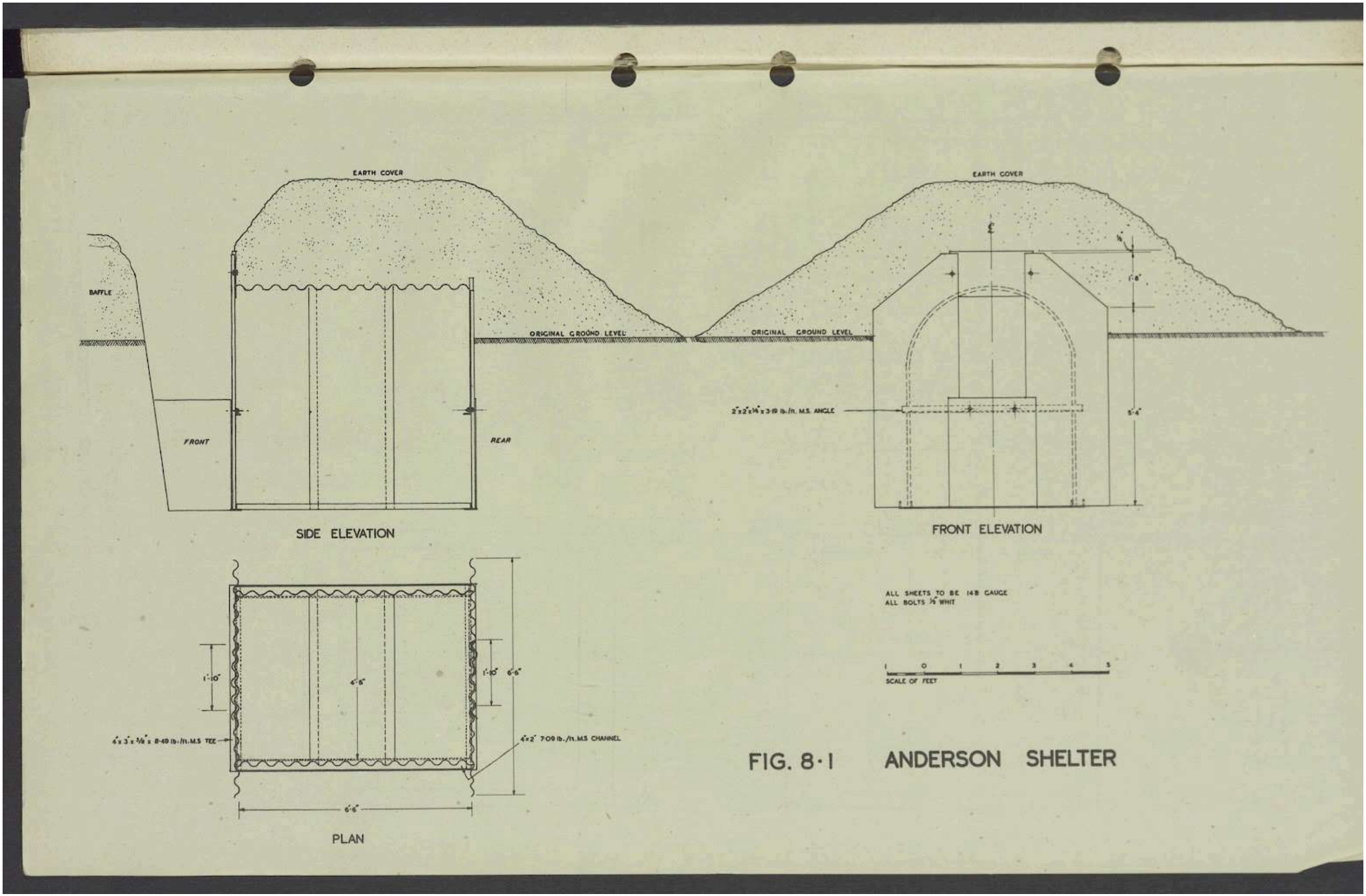


FIG. 8·1 ANDERSON SHELTER

ABOVE: **the originally CONFIDENTIAL classified document chapters of Dr D.G. Christopherson's "Structural Defence 1945, RC450", giving low cost UK WWII shelter effectiveness data, which should also have been published to prove the validity of civil defence countermeasures in making deterrence of future war more credible by allowing survival of "demonstration" strikes and "nuclear accidents / limited wars" (it's no use having weapons and no civil defence, so you can't deter aggressors, the disaster of Munich appeasement giving Hitler a green light on 30 September 1938, when Anderson shelters were only issued the next year, 1939!).** For the original WWII UK Government low cost sheltering instruction books issued to the public (for a small charge!) please **click here (we have uploaded them to internet archive),** and please click **here for further evidence for the effectiveness of indoor shelters during WWII from Morrison shelter inventor Baker's analysis, please click here (he titled his book about WWII shelters "Enterprise versus Bureaucracy" which tells you all you need to know about the problems his successful innovations in shelter design experienced; his revolutionary concept was that the shelter should be damaged to protect the people inside because of the vast energy absorption soaked up in the plastic deformation of steel - something which naive fools can never appreciate - by analogy, if your car bumper is perfectly intact after impact you're unlikely to be because it has not absorbed the impact energy which has been passed on to you!)**. We have also placed useful declassified UK government nuclear war survival information on internet archive **here** and **here.** There is also a demonstration of how proof-tested WWII shelters were tested in 1950s nuclear weapon trials and adapted for use in Cold War nuclear civil defence, **here, thus permanently debunking the somewhat pro-dictatorship/anti-deterrence Jeremy Corbyn/Matthew Grant/Duncan Campbell anti-civil defence propaganda rants which pretend to to based on reality, but obviously just ignore the hard, yet secret, nuclear testing facts upon which UK government civil defence was based as my father (a Civil Defence Corps instructor) explained here back in 2006.** The reality is that the media follows herd fashion to sell paper/airtime; it doesn't lead it. This is why it backed Nazi appeasement (cheering Chamberlain's 1938 handshakes with Hitler for instance) and only switched tune when it was too late to deter Nazi aggression in 1939; it made the most money that way. We have to face the facts!

CD .807.

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MINISTRY OF HOME SECURITY

Scientific Adviser's Branch.

RESEARCH AND EXPERIMENTS DEPARTMENT

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Declassified 22.3.71
See note on fly-leaf
at front of this volume.
A.B. George
Home Office Archives
28.5.75.

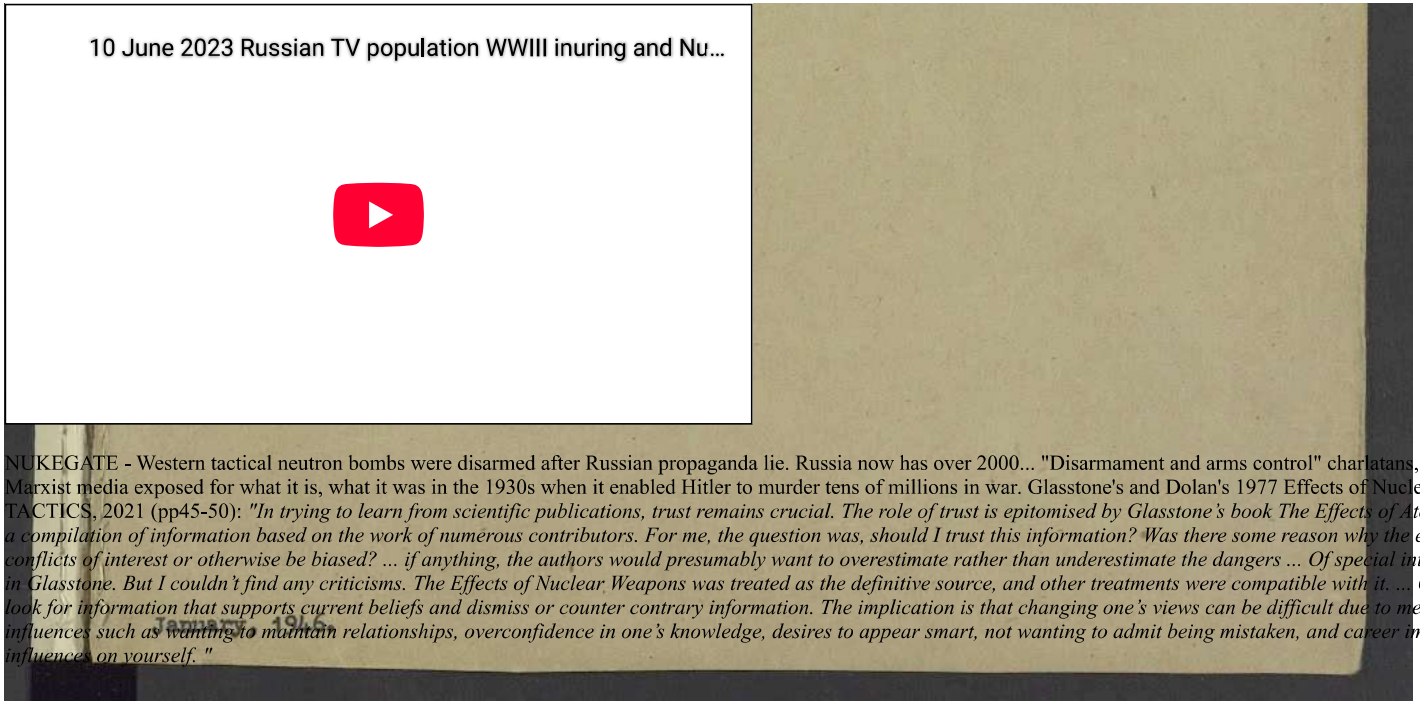
STRUCTURAL DEFENCE, 1945

by

D.G. CHRISTOPHERSON, D.Phil.

Fellow of Magdalene College, Cambridge.

Formerly of the Research and Experiments Department, Ministry of Home Security



NUKEGATE - Western tactical neutron bombs were disarmed after Russian propaganda lie. Russia now has over 2000... "Disarmament and arms control" charlatans, quacks, cranks, liars, mass murdering Russian affiliates, and evil genocidal Marxist media exposed for what it is, what it was in the 1930s when it enabled Hitler to murder tens of millions in war. Glasstone's and Dolan's 1977 Effects of Nuclear Weapons deceptions totally disproved. Professor Brian Martin, TRUTH TACTICS, 2021 (pp45-50): *"In trying to learn from scientific publications, trust remains crucial. The role of trust is epitomised by Glasstone's book The Effects of Atomic Weapons. Glasstone was not the author; he was the editor. The book is a compilation of information based on the work of numerous contributors. For me, the question was, should I trust this information? Was there some reason why the editors or authors would present fraudulent information, be subject to conflicts of interest or otherwise be biased? ... if anything, the authors would presumably want to overestimate rather than underestimate the dangers ... Of special interest would be anyone who disagreed with the data, calculations or findings in Glasstone. But I couldn't find any criticisms. The Effects of Nuclear Weapons was treated as the definitive source, and other treatments were compatible with it. ... One potent influence is called confirmation bias, which is the tendency to look for information that supports current beliefs and dismiss or counter contrary information. The implication is that changing one's views can be difficult due to mental commitments. To this can be added various forms of bias, interpersonal influences such as wanting to maintain relationships, overconfidence in one's knowledge, desires to appear smart, not wanting to admit being mistaken, and career impacts of having particular beliefs. It is difficult to assess the role of these influences on yourself. "*

"Ignorance and misinformation can handicap the progress of a city or a company, but they can, if allowed to prevail in foreign policy, handicap this country's security. In a world of complex and continuing problems, in a world full of frustrations and irritations, America's leadership must be guided by the lights of learning and reason - or else those who confuse rhetoric with reality and the plausible with the possible will gain the popular ascendancy with their seemingly swift and simple solutions to every world problem."

- President John F. Kennedy's ungiven speech to the Dallas Trade Mart on 22 November 1963.

The Western neutron bomb disarmament

Western nukes



YEAR: 1992

Russian nukes

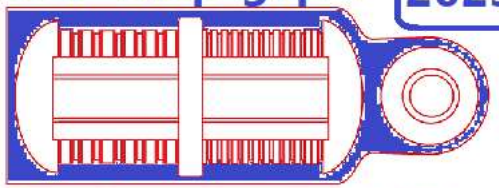


Russian World Peace Council propaganda eliminated West's W79

Russian neutron warhead, product "152" (2.5kt)



B61 "stop-gap": 2023



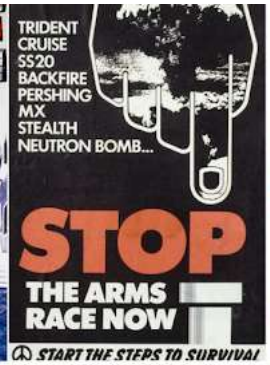
B61 secondary stage "sausages" contain U235 rings

Lithium deuteride in secondary sausages of B61 soak up unboosted "tactical" neutrons



Dr Rotblat of PUGWASH and Russian mass murder with Litvinov bomb


Neutronenbombe
NEIN

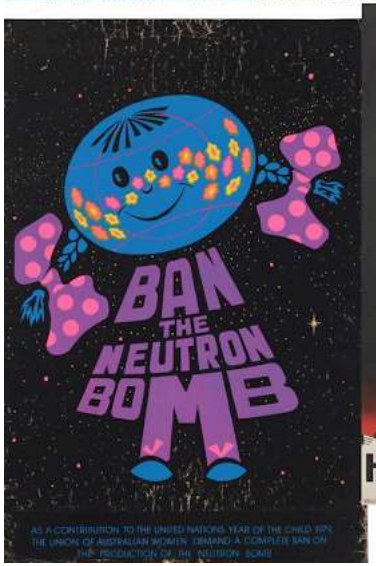

TRIDENT
CRUISE
SS20
BACKFIRE
PERSHING
MX
STEALTH
NEUTRON BOMB...
STOP
THE ARMS
RACE NOW
START THE STEPS TO SURVIVAL


STOP
NEUTRONEN
BOM


STOPPT die
neutronen
BOMBE
Deutsche Friedensgesellschaft-
Vereinigte Kriegsdienstgegner


НЕТ
НЕЙТРОННОЙ
БОМБЕ!
NEIN!
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ВООРУЖЕНИЙ!


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Nee tegen de
Neutronenbom


ЯДЕРНЫЙ
АВАНТЮРИЗМ
США–
БЕЗУМИЕ
ВЕКА!
NEUTRON
BOMB !

Sunday 21 May 1978, San Francisco Examiner

ANALYSIS & OPINION

The Neutron Bomb — Is It 'Clean' Or 'Dirty'?

By Tony Geraghty and Reuben Ainsztein

IN THE pale green corridors of the Pentagon a batch of unofficial photocopies has been taped to the walls. They read: "Bows and arrows kill people but leave buildings intact." The notices parody the objections of the Kremlin and others not so much to the longbow as to the Lance and other missiles capable of delivering NATO's newest and most controversial weapon, the neutron "bomb."

The "bomb" — actually, a shell or missile warhead — is a nuclear device in which the explosive energy is mostly released as neutron radiation rather than heat and blast. Like the arrow, it kills people, sometimes slowly and painfully. Unlike the arrow it penetrates buildings and tanks to do so. But beyond an immediate blast area a few hundred yards across, it leaves the buildings intact while releasing an invisible bombardment of neutron radiation which causes damage to the mammalian central nervous system.

It is the weapon's novel capacity to destroy life while



HAIG

leaving property intact that has generated so much hostility on both sides of the Iron Curtain. While there is plenty of emotional resistance to the bomb as a "people killer," many noted Western authorities who have had reason to think about the likely patterns of future nuclear war believe it raises more rational worries. In one way or another, they believe, the ground rules of nuclear war have changed.

words of Gen. Johannes Steinhoff, former chairman of NATO's Military Committee, the new weapon "makes the unthinkable conceivable."

Eric Burhop, professor of Nuclear Physics at University College, London, a nuclear weapons pioneer who has converted to nuclear disarmament, says, "It is the weapon par excellence of the aggressor who is determined to take over intact cities and industries of another country."

Herbert Scoville, former deputy director of the CIA, believes that enemy soldiers "receiving even ten times a lethal neutron radiation dose could still continue to fight effectively for about half an hour and die only a day or so later ..." By implication, such troops would be converted into kamikaze squads.

On the Soviet side, Dr. Boris Petrovsky, U.S.S.R. Public Health Minister, has used quite different arguments: that the multiple use of neutron warheads would not mean that damage would be limited, as is claimed, or that civilian casualties would be light. He recalls that individual air-dropped bombs of the Second World War theoretically caused only a few dozen yards' destruction.



LANCE MISSILE TEST FIRING IN NEW MEXICO

the destructive power of existing tactical devices now aimed at and from Europe. That total is 12,000, of which about 7000 are in NATO hands. Each averages 20 to 50 kilotons of explosive power — equivalent to 20,000 to 50,0000 tons of TNT — and compares with the 20-kiloton weapon dropped on Hiroshima. The warhead on Russia's latest Euro-missile, the SS-20, is thought to be equal to a million tons.

The multiple use of neutron warheads would not mean limited damage . . . or light casualties

Yet "it is enough to recall the ruins of Stalingard, Coventry, and Dresden."

There are, of course, contrary views held by equally informed minds. In general, these hold that it is better to have a deterrent which is credible, and can be used in open countryside against tank formations, than a Pyrrhic weapon which scores on a grand scale, destroying friendly cities.

Perhaps the most persuasive

The fact that the neutron bomb is not deployed, and that West European opinion is still deeply divided about the weapon, is the result of a complex blend of historical accident, miscalculation in the West about Russia's growing capacity to make nuclear war, and the long, sometimes chaotic processes by which democracies arrive at important decisions.

The concept of "enhanced radiation" weapons has a long

and the first device was tested in 1963. The idea was further fleshed out as the Spring anti-ballistic missile, tested in 1965. Then the SALT I agreement of May, 1972, froze ABM systems and put the neutron plans into storage. Only briefly, however, because U.S. interest in such weapons was reawakened a year later by the Schlesinger doctrine of "flexible response" to Soviet attack.

James Schlesinger was then President Nixon's Defense Secretary, and he proposed a gradual escalation, rather than all-out nuclear war from the start of hostilities. Over the next three years the neutron idea was discussed by NATO's Nuclear Planning Group, of which Britain's Defense Minister was a member, and was consistently applauded.

Within the U.S., the Army and government nuclear scientists started on the next major step, to develop a miniature version of the neutron weapon suitable for the battlefield, small enough for guns as well as missile launchers. The result was the W-70-3, a one-kiloton warhead for the Army's Lance missile (with which British troops were equipped) and, later, the W-79, an eight-inch artillery shell. Within the

seemed at last that NATO had an answer to the chronic 3-to-1 advantage of Warsaw Pact tank forces.

Subsequently both NATO's Secretary General, Joseph Luns, and its Supreme Commander, Gen. Alexander Haig, publicly appealed for NATO to adopt the weapon. All seemed set to go ahead — but in the meantime two things had happened: 1) Soviet power had grown; 2) the military's enthusiasm for the neutron bomb was by no means shared by everyone.

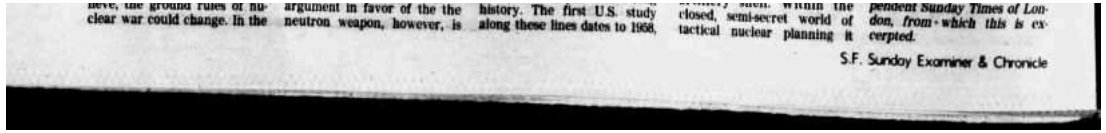
During the years that U.S. military scientists worked on a tactical neutron warhead, the Soviets were working to achieve nuclear parity with the U.S. in every other area, whether battlefield weaponry or intercontinental ("strategic") missiles. As NATO Commander Haig admitted last October, this new parity worries Western strategists. It inhibits NATO's nuclear planning and helps explain why Moscow feels confident enough to make the West's latest nuclear weapon a major issue.

In other words, when the West had a substantial advantage over the Russians in larger, "dirtier" weapons, the neutron bomb was a smaller, cleaner response alternative to a sudden conventional Soviet tank advance. But now that the neutron bomb is a practical possibility it is no longer simply an alternative defensive weapon; it disturbs an emerging balance of power and in that sense is "destabilizing." It is this coincidence of events which has made the new weapon so vulnerable to public opinion and has led the Soviets to exploit the dilemma again and again.

In recent months the press took up the story worldwide, some treating the weapon as the latest, most fashionable artifact from the world of Dr. Strangelove. NATO did not, as expected, Vote in favor of deploying the weapon in Europe. President Carter did not, as expected, approve its production. The weapon remains in limbo. The publicity seems to have been largely responsible.

The neutron bomb seems certain to come up at the next NATO summit meeting at Washington this month. By a near coincidence, while NATO gathers in Washington, the UN in New York will be holding a special General Assembly session on disarmament.

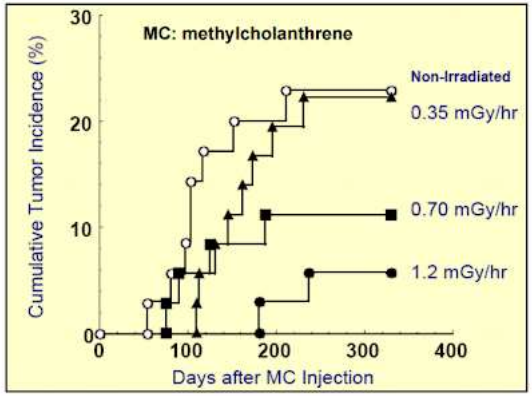
Tony Geraghty and Reuben Ainsztein write for the inde-



...clear war could change. In the argument in favor of the the neutron weapon, however, is history. The first U.S. study along these lines dates to 1958, ... closed, semi-secret world of tactical nuclear planning it ... pendent Sunday Times of London, from which this is excerpted.

S.F. Sunday Examiner & Chronicle

Low Rate Gamma Irradiation Suppressed MC-Induced Skin Tumors in Mice



K. Sakai, International Hormesis Conference 2005

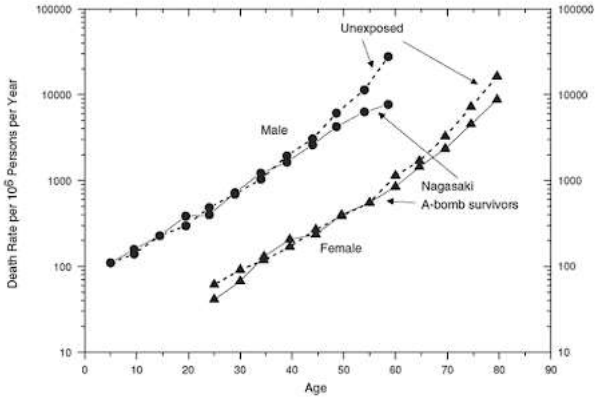
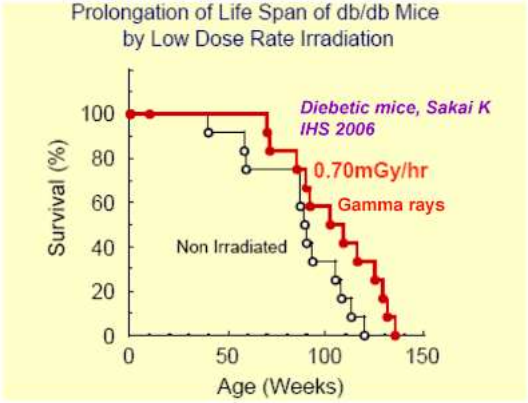


Fig. 13.1 Mortality in male and female Japanese A-bomb survivors and comparable unexposed controls

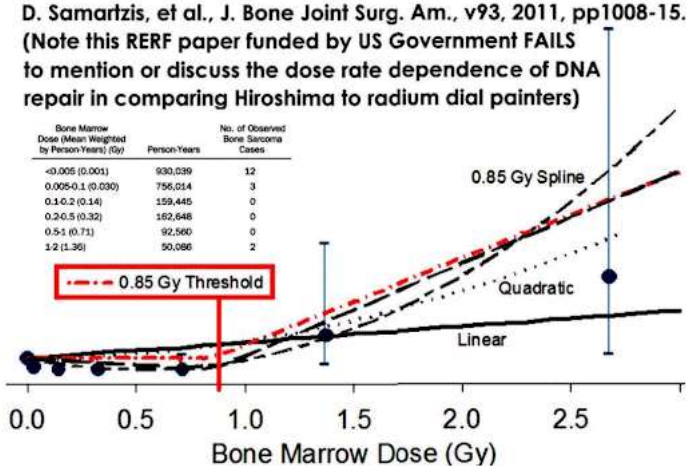
SOURCE: Charles L. Sanders, Radiation Hormesis and the Linear-No-Threshold Assumption, Springer, 2010.

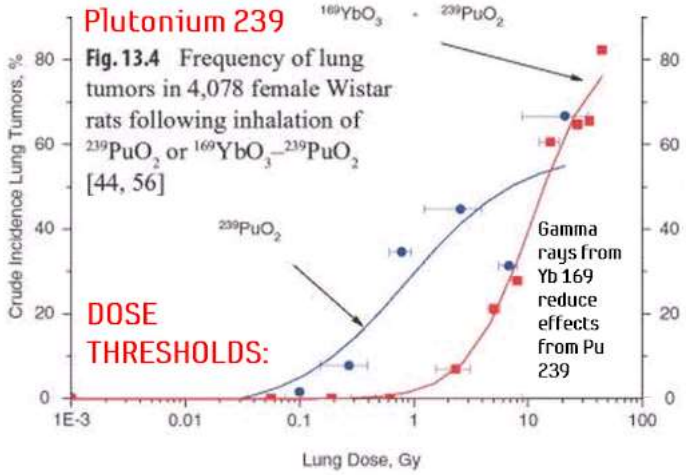


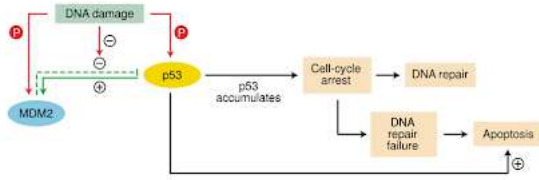
Radiation unbinds DNA repair enzym P53 from its MDM inhibitor, enablin DNA break repair and apoptosis tha prevents cancer

D. Samartzis, et al., J. Bone Joint Surg. Am., v93, 2011, pp1008-15. (Note this RERF paper funded by US Government FAILS to mention or discuss the dose rate dependence of DNA repair in comparing Hiroshima to radium dial painters)

Bone Marrow Dose (Mean Weighted by Person-Years) (Gy)	Person-Years	No. of Observed Bone Sarcoma Cases
<0.005 (0.001)	930,039	12
0.005-0.1 (0.030)	756,014	3
0.1-0.2 (0.14)	159,445	0
0.2-0.5 (0.32)	162,648	0
0.5-1 (0.71)	92,560	0
1-2 (1.36)	50,086	2







Two nearly identical lifespan studies were carried out in the same laboratory wit 70-day-old female Wistar rats exposed to submicron-sized, insoluble aerosols of high-fire $^{239}PuO_2$ particles. The first study [56] was with 936 rats exposed to $^{239}PuO_2$, and the secon study was with 3,142 rats exposed to $^{169}Yb_2O_3$–$^{239}PuO_2$ [44, 57, 58]. The only differenc between the two studies was that rats in the second study received a few mGy cumulativ γ-ray doses from ^{169}Yb (Fig 13.4).

44. Sanders CL, Lauhala KE, McDonald KE (1993) Lifespan studies in rats exposed to $^{239}PuO_2$ aerosol. III. Survival and lung tumors. Int J Radiat Biol 64:417–340

56. Sanders CL, Dagle GE, Cannon WC et al (1976) Inhalation carcinogenesis of high-fire $^{239}PuO_2$ in rats. Radiat Res 68:340–360

Source: Dr Charles L. Sanders, Radiation Hormesis and the Linear No Threshold Assumption, Springer, 2010.

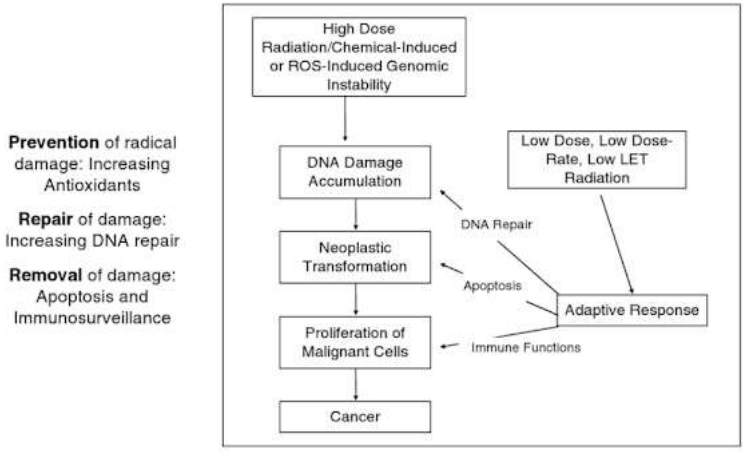


Fig. 2.2 Mechanisms of prevention, repair, and removal of ROS and radiation damage

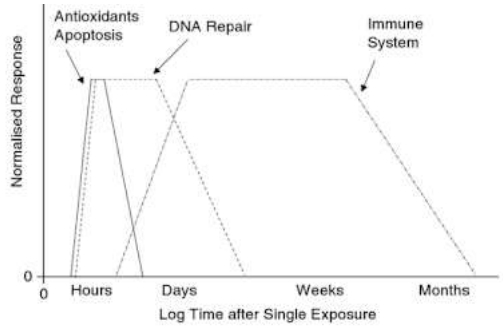


Fig. 2.3 Temporal stimulation of antioxidants, DNA repair, apoptosis, and the immune system following exposure to ionizing radiation [49]

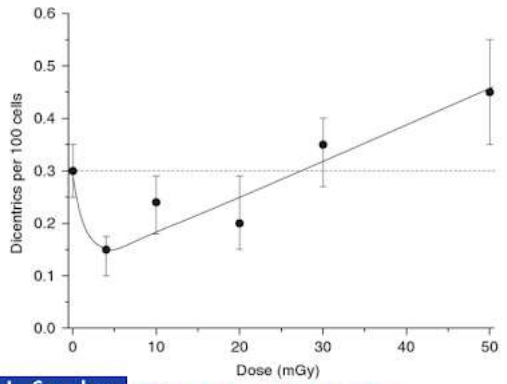


Fig. 2.6 Dicentric chromosome aberration yield as a function of radiation dose [82]

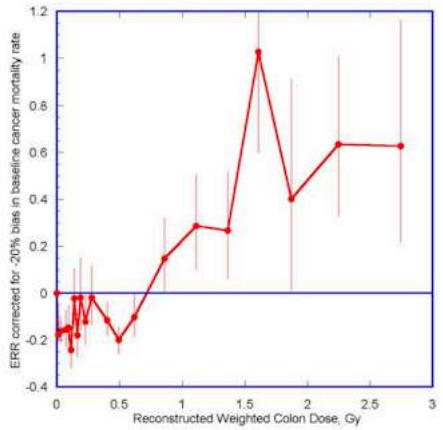
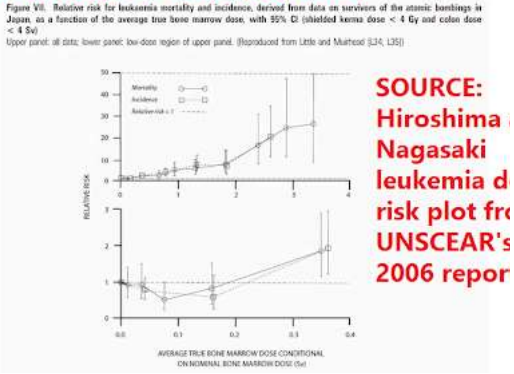


FIGURE 3. Excess relative risk (ERR) for all solid cancer mortality in atomic bomb survivor rected for -20% bias in baseline cancer mortality rate plotted as a function of colon dose. Erro are 95% CI. The obvious requirement that ERR = 0 at zero dose has been added as an additiona point.

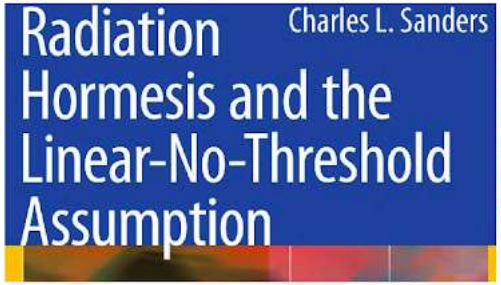
SOURCE: Doss, Mohan (2013) "LINEAR NO-THRESHOLD MODEL VS. RADIATION HORMESIS," Dose-Response: An Internationa Journal: Vol. 11 : Iss. 4 , Article 6



SOURCE: Hiroshima Nagasaki leukemia d risk plot fr UNSCEAR's 2006 repor

"Ignorance and misinformation can handicap the progress of a city or a company, but they can, if allowed to prevail in foreign policy, handicap this country's security. In a world of complex and continuing problems, in a world full of frustrations and irritations, America's leadership must be guided by the lights of learning and reason - or else those who confuse rhetoric with reality and the plausible with the possible will gain the popular ascendancy with their seemingly swift and simple solutions to every world problem."

- President John F. Kennedy's ungiven speech to the Dallas Trade Mart on 22 November 1963.



When the "Linear No-Threshold" assumption of radiation was formulated by Lewis in 1957 (in opposition to bomb fallout!), it was TOTALLY UNKNOWN that radiation unbinds DNA repair enzyme P53 from its MDM2 inhibitor!

WASHINGTON SCENE...*from the AIAA Washington*

ASTRONAUTICS & AERONAUTICS
January 1981

● CIA Deputy Director John McMahon, in testimony before a House Intelligence Subcommittee, estimated that the Soviet Union had spent $200 million on propaganda and covert campaigns against NATO deployment of enhanced-radiation (neutron-bomb) weapons and the modernization of theater nuclear weapons.

Enhanced radiation weapons (ERW) increase radiation while greatly reducing blast (tenfold) and heat damage to surrounding areas. Made for use in short-range, tactical nuclear weapons such as the Lance missile and 8-in. howitzer, they would probably be used against large concentrations of Warsaw Pact tanks, a major threat to NATO.

The campaign against the neutron bomb began in the summer of 1977 and was manifested in a series of coordinated diplomatic moves, overt propaganda, and covert political action, said McMahon. It began in the Soviet and East European press and spread to communist international front groups all over the world. "The purpose of this front-group activity was to maintain the campaign's momentum and to draw noncommunists into the campaign, particularly in Western Europe. What had begun as a Soviet effort now appeared to many as a general public reaction to the alleged horrors of the neutron bomb," said McMahon.

By far the most important comments, said McMahon, appeared in the noncommunist press in the political center

While it is difficult to assess the full impact of the anti-neutron-bomb campaign, the Carter Administration in April of 1978 deferred production of the enhanced-radiation element of the warheads indefinitely while proceeding with modifications to the warheads themselves to make them compatible with ER components. In commenting on the results of the Soviet bloc campaign, the CIA testimony quoted the chief of the International Department of the Hungarian Communist Party, Janos Berecz, as saying, "The political campaign against the neutron bomb was one of the most significant and most successful since World War II." McMahon also noted that "the Soviet Ambassador to the Hague (Netherlands) at that time was subsequently decorated by the CPSU (Communist Party of the Soviet Union) in recognition of the success of the Dutch Communist Party, under his direction, in organizing the high point of the anti-neutron bomb campaign."

With the neutron bomb temporarily defused, testified McMahon, the Soviet Bloc turned its efforts against the U.S.-initiated move to modernize the theater nuclear forces (TNF) by deploying the highly accurate ground-launched cruise missile (GLCM) and the Pershing II missile. Scheduled for deployment in late 1983, they will, for the first time, place targets on Soviet soil within range of NATO ground-based missiles. The purpose of the modernization is to minimize the

The Effects of Nuclear Weapons www.nukegate.org
Archives
- 03/28/06
- 03/29/06
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- 03/31/06
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- 04/29/06

Approved For Release 2004/09/24 : CIA-RDP81M00980R003200010060-0

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CIA declassified: CIA-RDP81M00980R003200010060-0

2 September 1977

SOVIET PROPAGANDA: THE NEUTRON BOMB

SUMMARY: The Soviet Union during July and August 1977 mounted a worldwide campaign against U.S. production of the neutron bomb. The Soviets pursued this issue in every media channel and wherever it was possible to stimulate adverse public discussion. These efforts were directed toward pressuring the U.S. to back away from producing the bomb as well as accumulating political capital for Soviet use at future SALT and CSCE talks. As the campaign peaked at the end of August, it was apparent

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denouncing the neutron bomb. During the week of 1-7 August, significant attention was directed toward support of the "Week of Action" organized for 6-13 August by the World Peace Council front group. To keep up steam, Pravda on 9 August published an appeal by 28 communist parties against production of the neutron bomb. The American Embassy in Moscow noted that the neutron bomb was the prime Soviet propaganda target.

7. Echoes in Eastern Europe. State Department telegrams from East European Posts agree that the neutron bomb campaign there, which took off in the latter weeks of July, was massive, well-organized and faithfully mirrored the Soviet effort. The campaign employed all channels of public communication: press, radio, television, petitions, public letter writing and demonstrations. Some comments:

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10. For the Soviets, the real propaganda paydirt lay in editorial treatment given the neutron bomb by this second group, a performance judged by NATO Secretary General Luns in a 26 August speech as consisting of half-truths, untruths and ignorance. Given the emotional themes which were raised in the neutron bomb debate--saving buildings rather than people; the hypocrisy of Americans advocating human rights in face of the bomb production; the endangering of detente--it was an old-fashion editorial binge which many papers would not deny themselves. And beyond the non-communist, anti-bomb press,

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The KGB's Magical War for "Peace"

BY JOHN BARRON

It has spread like a raging fever throughout the world. From Bonn to Istanbul, Lima to New York, millions upon millions of people have joined in the nuclear-freeze movement. It is a movement largely made up of patriotic, sensible people who earnestly believe that they are doing what they must to prevent nuclear war. But it is also a movement that has been penetrated, manipulated and distorted to an amazing degree by people who have but one aim—to promote communist tyranny by weakening the United States. Here, in an exclusive report, Reader's Digest Senior Editor John Barron, author of the best-seller "KGB: The Secret Work of Soviet Secret Agents," authenticates in detail how the Kremlin, through secrecy, forgery, terrorism and fear, has played upon mankind's longing for peace to further its own strategic

Fabrications and Fronts

In the Soviet lexicon, Active Measures include both overt and covert propaganda, manipulation of international front organizations, forgeries, fabrications and deceptions, acts of sabotage or terrorism committed for psychological effect, and the use of Agents of Influence.*

The KGB has concocted more than 150 forgeries of official U.S. documents and correspondence portraying American leaders as treacherous and the United States as an unreliable, warmongering na-

[illegible] one of the most damaging was a fabrication titled *U.S. Army Field Manual FM30–31B* and classified, by the KGB, top secret. Field manuals *FM30–31* and *FM30–31A* did exist; *FM30–31B* was entirely a Soviet creation. Over the forged signature of Gen. William Westmoreland, the manual detailed procedures to be followed by U.S. military personnel in friendly foreign countries. These fictitious in-

Façade of Peace

The World Peace Council emerged in Paris in 1950 to foment "Ban the Bomb" propaganda at a time when the Soviets had not succeeded in arming themselves with nuclear weapons. Expelled from France for subversion in 1951, the WPC took refuge in Prague until 1954, when it moved to Vienna. The Austrians also evicted the

READERS' DIGEST, 1983 BOOK EXTRACTS BY JOHN BARRON



Romesh Chandra

[illegible] the global propaganda campaign to compel withdrawal of American forces from Vietnam.

The president of the council is Indian communist Romesh Chandra, who long has been a controlled and witting Soviet agent. Intelligent, vain and arrogant, Chandra is almost embarrassing in his slavish adherence to Soviet dictates and his paeans to all things Soviet. "The Soviet Union invariably supports the peace movement," Chandra said a few years ago. "The World Peace Council in its turn positively reacts to all Soviet initiatives in international affairs."

Nevertheless, the Russians supervise Chandra closely by assigning both International Department and KGB representatives to the permanent secretariat of the WPC in Helsinki. The public record amply demonstrates the totality of Soviet control. In its 32 years of existence, the WPC has not deviated from the Kremlin's line of the moment. It did not raise its voice against Soviet suppression of Polish and East German workers in 1953, Soviet slaughter of Hungarians in 1956, Soviet abrogation of the nuclear-test moratorium in 1961, the clandestine emplacement of nuclear missiles in Cuba in 1962, the invasion of Czechoslovakia in 1968, the projection of Soviet military power in Angola, Ethiopia and Yemen. The WPC has failed to criticize a single Soviet armament program; only those of the West. And it endorsed the Soviet invasion of Afghanistan.

WPC finances further reflect So-[illegible]

reaction to the enhanced-radiat[illegible] warhead (ERW), which soon [illegible] mislabeled the neutron bomb. [illegible] ERW was born of the most reali[illegible] considerations. By 1976 the So[illegible] Union and its satellites had [illegible] ployed some 20,000 battle ta[illegible] against West Germany.

NATO, with only some 7[illegible] tanks and numerically infe[illegible] ground forces, could be sure[illegible] repelling an onslaught by So[illegible] armor only through the use of ta[illegible] cal nuclear weapons. However, [illegible] smallest of the nuclear weap[illegible]

argument; not to attack, but [illegible] intimidate and fragment by thr[illegible]

The United States developed [illegible] ERW solely to neutralize this thr[illegible] Fired from a howitzer or sho[illegible] range missile, the ERW oblitera[illegible] everything within a radius of ab[illegible] 120 yards, inflicting no physi[illegible] damage beyond. It releases n[illegible] trons, which flash through [illegible] thickest armor with the ease [illegible] light passing through a windo[illegible] The neutrons instantly kill ta[illegible] crews, soldiers and anybody else[illegible] a radius of 500 yards, and ca[illegible]

following arguments: The E[illegible] would render the 20,000 comm[illegible] nist tanks menacing NATO by a[illegible] large useless, militarily and poli[illegible] cally. The ERW could wipe out t[illegible] crews of entire communist [illegible] mored divisions, while causi[illegible] minimal civilian casualties a[illegible] physical devastation. In oth[illegible] words, NATO could defend We[illegible] ern Europe without destroyi[illegible] much of the area and its populatio[illegible]

Accordingly, President Gera[illegible] Ford in April 1976 approved t[illegible] enhanced-radiation warhead. B[illegible] in June 1977 President Jimmy Ca[illegible]

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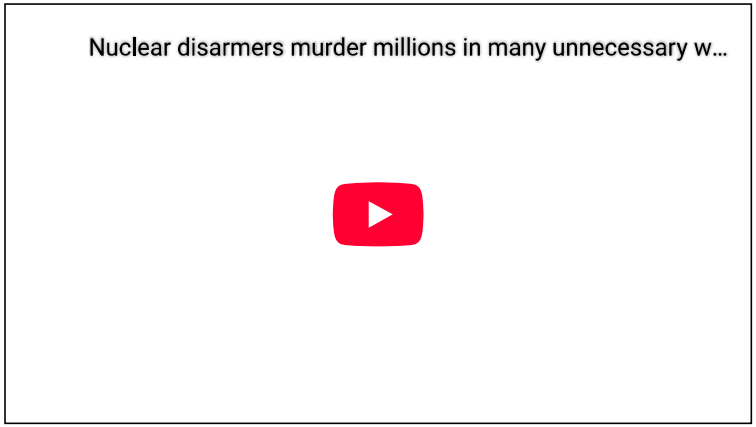
ABOVE (VIDEO CLIP): **Russian State TV Channel 1 war inurer and enabler, NOT MERELY MAKING "INCREDIBLE BLUFF THREATS THAT WE MUST ALL LAUGH AT AND IGNORE LIKE DR GOEBBELS THREATS TO GAS JEWS AND START A WORLD WAR" AS ALMOST ALL THE BBC SCHOOL OF "JOURNALISM" (to which we don't exactly belong!) LIARS CLAIM, but instead preparing Russians *mentally* for nuclear war (they already have nuclear shelters and a new Putin-era tactical nuclear war civil defense manual from 2014, linked and discussed in blog posts on the archive above), arguing for use of nuclear weapons in Ukraine war in 2023: "We should not be afraid of what it is unnecessary to be afraid of. We need to win. That is all. We have to achieve this with the means we have, with the weapons we have. I would like to remind you that a nuclear weapon is not just a bomb; it is the heritage of the whole Russian people, suffered through the hardest times. It is our heritage. And we have the right to use it to defend our homeland [*does he mean the liberated components of the USSR that gained freedom in 1992?*]. Changing the [nuclear use] doctrine is just a piece of paper, but it is worth making a decision."**



NOTE: THIS IS NOT ENGLISH LANGUAGE "PROPAGANDA" SOLELY ADDRESSED AS A "BLUFF" TO UK AND USA GOV BIGOTED CHARLATANS (those who have framed photos of hitler, stalin, chamberlain, baldwin, lloyd george, eisenhower, et al., on their office walls), BUT ADDRESSED AT MAKING RUSSIAN FOLK PARTY TO THE NEED FOR PUTIN TO START A THIRD WORLD WAR! Duh!!!!! SURE, PUTIN COULD PRESS THE BUTTON NOW, BUT THAT IS NOT THE RUSSIAN WAY, ANY MORE THAN HITLER SET OFF WWII BY DIRECTLY BOMBING LONDON! HE DIDN'T. THESE PEOPLE WANT TO CONTROL HISTORY, TO GO DOWN THE NEXT "PUTIN THE GREAT". THEY WANT TO GET THEIR PEOPLE, AND CHINA, NORTH KOREA, IRAN, ET Al. AS ALLIES, BY APPEARING TO BE DEFENDING RATIONALITY AND LIBERTY AGAINST WAR MONGERING WESTERN IMPERIALISM. For the KGB mindset here, please read Chapman Pincher's book "The Secret offensive" and Paul Mercer's "Peace of the Dead - The Truth Behind the Nuclear Disarmers". **Please note that the link to the analysis of the secret USSBS report 92, The Effects of the Atomic Bomb on Hiroshima, Japan (which google fails to appreciate is a report with the OPPOSITE conclusions to the lying unclassified reports and Glasstone's book on fire, is on internet archive in the PDF documents list at the page "The effects of the atomic bomb on Hiroshima, Japan" (the secret report 92 of the USSBS, not the lying unclassified version or the Glasstone book series). If you don't like the plain layout of this blog, you can change it into a "fashionable" one with smaller photos you can't read by adding ?m=1 to the end of the URL, e.g. https://glasstone.blogspot.com/2022/02/analogy-of-1938-munich-crisis-and.html?m=1**



PLEASE BEAR WITH US - THIS SITE WAS DEVELOPED IN 2006 BEFORE GOOGLE SMARTPHONE BOT CACHING (GOOGLE BOTS CAN'T INDEX THIS FORMAT ANYMORE AS IT IS SIMPLY UNSUITABLE TO SMARTPHONES WHICH DIDN'T EXIST BACK IN 2006 - WILL MOVE TO A NEW DOMAIN SOON TO OVERCOME THIS. (HOPEFULLY THE TEXT WILL ALSO BE EDITED AND RE-WRITTEN TO TAKE OUT TYPING ERRORS AND DEAD LINKS DATING BACK TO 2006 WHEN THE BLOG BEGAN - A LOT HAS CHANGED SINCE THEN!)

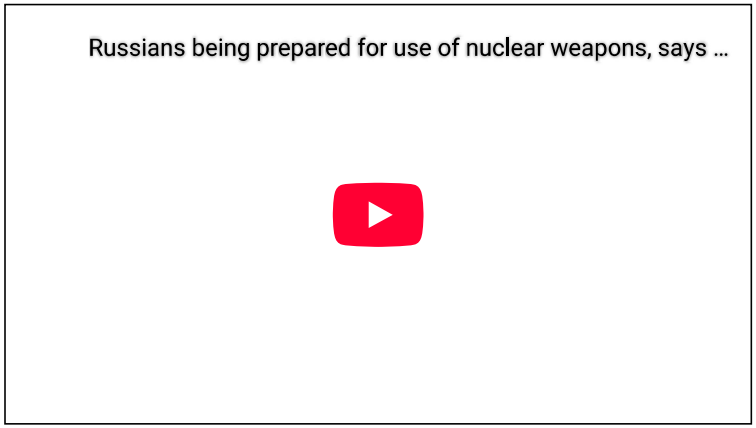


Glasstone's Effects of Nuclear Weapons exaggerations completely undermine credible deterrence of war: Glasstone exaggerates urban "strategic" nuclear weapons effects by using effects data taken from unobstructed terrain (without the concrete jungle shielding of blast winds and radiation by cities!), and omits the most vital uses and most vital effects of nuclear weapons: to DETER world war credibly by negating the concentrations of force used to invade Belgium, 1914 (thus WWI) and Poland (WWII). The facts from Hiroshima and Nagasaki for the shielding of blast and radiation effects by modern concrete buildings in the credible nuclear deterrence of invasions (click here for data) which - unlike the countervalue drivel that failed to prevent WW2 costing millions of human lives - worked in the Cold War despite the Western media's obsession with treating as Gospel truth the lying anti-nuclear propaganda from Russia's World Peace Council and its allies (intended to make the West disarm to allow Russian invasions without opposition, as worked in Ukraine recently)! If we have credible W54's and W79's tactical nukes to deter invasions as used to Cold War, pro Russian

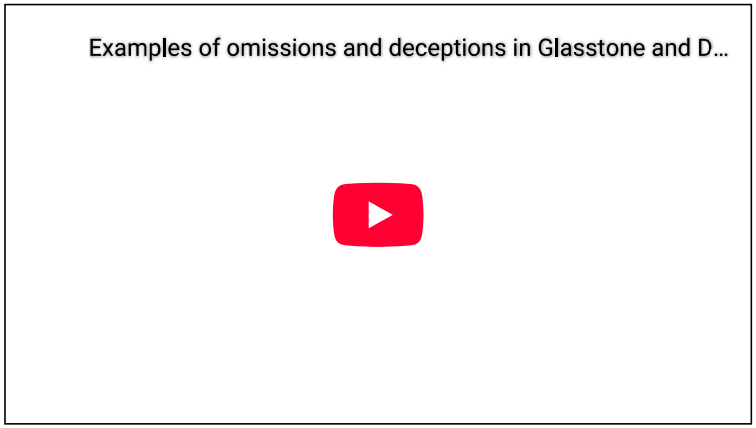
World Peace Council inspired propaganda says: "if you use those, we'll bomb your cities", *but they can bomb our cities with nuclear if we use conventional weapons, or even if we fart, if they want - we don't actually control what thugs in dictatorships - it is like saying Hitler had 12,000 tons of tabun nerve agent by 1945, so lying we had to surrender for fear of it.* Actually, he had to blow his brains out because he had an incredible deterrent, as retaliation risk plus defence (masks) negated it!



Credible deterrence necessitates simple, effective protection against concentrated and dispersed invasions and bombing. The facts can debunk massively inaccurate, deliberately misleading CND "disarm or be annihilated" pro-dictatorship ("communism" scam) political anti-nuclear deterrence dogma. Hiroshima and Nagasaki anti-nuclear propaganda effects lies on blast and radiation for modern concrete cities is debunked by solid factual evidence kept from public sight for political reasons by the Marx-media which is not opposed by the remainder of the media, and the completely fake "nuclear effects data" sneaks into "established pseudo-wisdom" by the back-door. Another trick is hate attacks on anyone telling the truth: this is a repeat of lies from Nobel Peace Prize winner Angell and pals before WWI (when long-"outlawed" gas was used by all sides, contrary to claims that paper agreements had "banned" it somehow) and WWII (when gas bombing lies prior to the war by Angell, Noel-Baker, Joad and others were used as an excuse to "make peace deals" with the Nazis, again, not worth the paper they were printed on). Mathematically, the subset of all States which keep agreements (disarmament and arms control, for instance) is identical to the subset of all States which are stable Democracies (i.e., tolerating dissent for the past several years), but this subset is - as Dr Spencer Weart's statistical evidence of war proves in his book *Never at War: Why Democracies Won't Fight One Another* - not the bloody war problem! Because none of the disarmaments grasp set theory, or bother to read Dr Weart's book, they can never understand that disarmament of Democracies doesn't cause peace but causes millions of deaths.



PLEASE CLICK HERE for the truth from Hiroshima and Nagasaki for the shielding of blast and radiation effects by modern concrete buildings in the credible nuclear deterrence of invasions which - unlike the countervalue drivel that failed to prevent WW2 costing millions of human lives - worked in the Cold War despite the Western media's obsession with treating as Gospel truth the lying anti-nuclear propaganda from Russia's World Peace Council and its allies (intended to make the West disarm to allow Russian invasions without opposition, as worked in Ukraine recently)! Realistic effects and credible nuclear weapon capabilities are needed for deterring or stopping aggressive invasions and attacks which could escalate into major conventional or nuclear wars. Credible deterrence is through simple, effective protection against concentrated and dispersed invasions and aerial attacks, debunking inaccurate, misleading CND "disarm or be annihilated" left political anti-nuclear deterrence dogma. Hiroshima and Nagasaki anti-nuclear propaganda effects lies on blast and radiation for modern concrete cities is debunked by solid factual evidence kept from public sight for political reasons by the Marx-media.

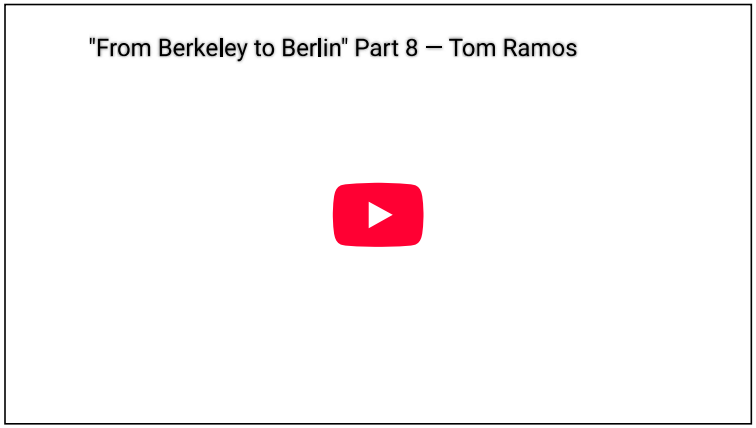




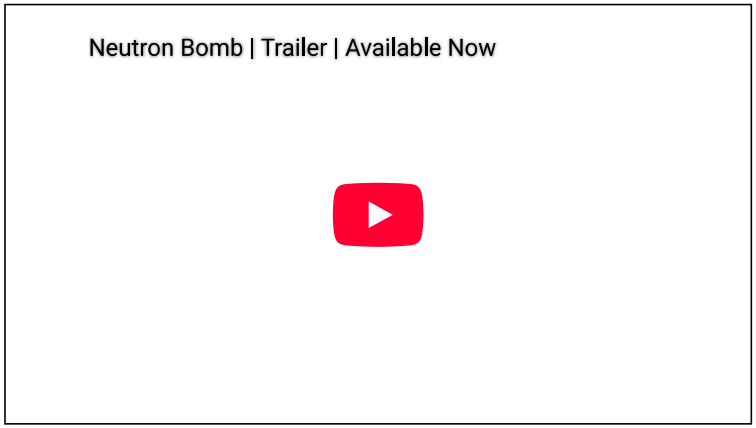
Glasstone's and Nukemap's fake Effects of Nuclear Weapons effects data for unobstructed deserts, rather than realistic blast and radiation shielding concrete jungles which mitigate countervalue damage as proved in Hiroshima and Nagasaki by Penney and Stanbury, undermine credible world war deterrence just as Philip Noel-Baker's 1927 BBC radio propaganda on gas war knock-out blow lies were used by Nazi propaganda distributing "pacifist disarmers" to undermine deterrence of Hitler's war, murdering tens of millions deliberately through lies (e.g. effective gas masks don't exist) that were easy to disprove, but supported by the mainstream fascist leaning press in the UK. There is not just one country, Russia, which could trigger WW3, because we know from history that the world forms alliances once a major war breaks out, apart from a few traditional neutral countries like Ireland and Switzerland, so a major US-China war over Taiwan could draw in support from Russia and North Korea, just as the present Russian invasion and war against Ukraine has drawn in Iranian munitions support for Russia. So it is almost certain that a future East-vs-West world war will involve an alliance of Russia-China-North Korea-Iran fighting on multiple fronts, with nuclear weapons being used carefully for military purposes (not in the imaginary 1930s massive "knockout blow" gas/incendiary/high explosive raids against cities that was used by the UK media to scare the public into appeasing Hitler and thus enabling him to trigger world war;

Chamberlain had read Mein Kampf and crazily approved Hitler's plans to exterminate Jews and invade Russia starting a major war, a fact censored out of biased propaganda hailing Chamberlain as a peacemaker).

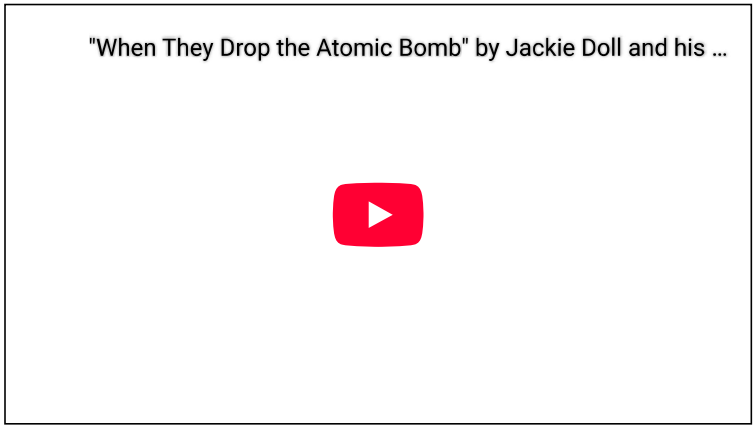
Realistic effects and credible nuclear weapons capabilities are VITAL for deterring or stopping aggressive invasions and attacks which could escalate into major conventional or nuclear wars debunk Marx media propagandarists who obfuscate because they don't want you to know the truth, so activism is needed to get the message out against lying frauds and open fascists in the Russian supporting Marx mass media, which sadly includes government officialdom (still infiltrated by reds under beds, sorry to Joe MaCarthy haters, but admit it as a hard fact that nuclear bomb labs in the West openly support Russian fascist mass murders; I PRAY THIS WILL SOON CHANGE!).

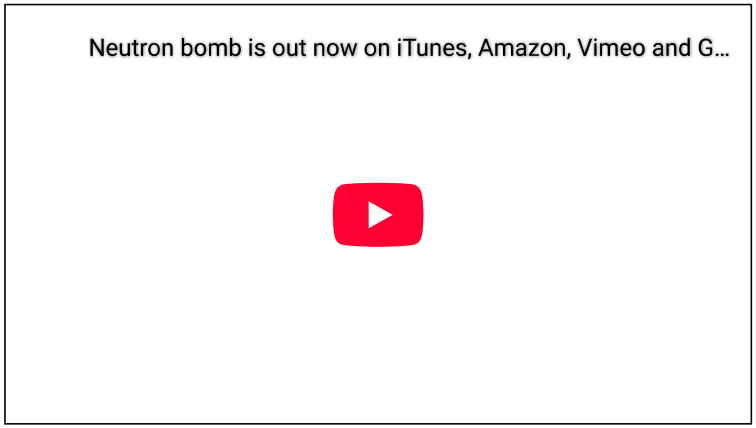


ABOVE: Tom Ramos at Lawrence Livermore National Laboratory (*quoted at length on the development details of compact MIRV nuclear warhead designs in the latest post on this blog*) explains how the brilliant small size primary stage, the Robin, was developed and properly proof-tested in time to act as the primary stage for a compact thermonuclear warhead to deter Russia in the 1st Cold War, something now made impossible due to Russia's World Peace Council propaganda campaigns. (*Note that Ramos has a new book published, called From Berkeley to Berlin: How the Rad Lab Helped Avert Nuclear War which describes in detail in chapter 13, "First the Flute and Then the Robin", how caring, dedicated nuclear weapons physicists in the 1950s and 1960s actually remembered the lesson of disarmament disaster in the 1930s, and so WORKED HARD to develop the "Flute" secondary and the "Robin" primary to enable a compact, light thermonuclear warhead to help deter WWIII! What a difference to today, when all we hear from such "weaponeers" now is evil lying about nuclear weapons effects on cities and against Western civil defence and against credible deterrence on behalf of the enemy.*)



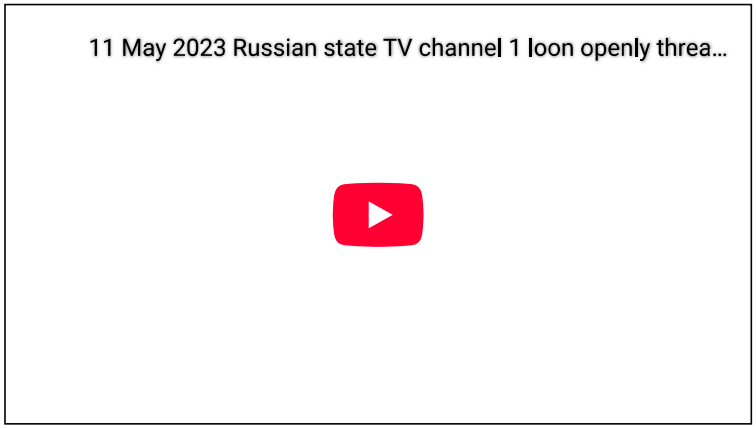
ABOVE: Star Wars filmmaker Peter Kuran has at last released his lengthy (90 minutes) documentary on *The neutron bomb*. Unfortunately, it is not yet being widely screened in cinemas or on DVD Blu Ray disc, so you have to stream it (if you have fast broadband internet hooked up to a decent telly). At least Peter managed to interview Samuel Cohen, who developed the neutron bomb out of the cleaner Livermore devices Dove and Starling in 1958 (Ramos says Livermore's director, who invented a wetsuit, is now trying to say Cohen stole the neutron bomb idea from him! Not so, as RAND colleague and 1993 Effects Manual EM-1 editor Dr Harold L. Brode explains in his recent brilliant book on the history of nuclear weapons in the 1st Cold War (reviewed in a post on this blog in detail) that Cohen was after the neutron bomb for many years before Livermore was even built as a rival to Los Alamos. Cohen had been into neutrons when working in the Los Alamos Efficiency Group of the Manhattan project on the very first nuclear weapons, used with neutron effects on people by Truman, back in 1945 to end a bloody war while the Livermore director was in short pants.)





For the true effects in modern city concrete buildings in Hiroshima and Nagasaki, disproving the popular lies for nudes in open deserts used as the basis for blast and radiation calculations by Glasstone and Nukemap, please click here The deceptive bigots protraying themselves as Federation of American Scientists genuine communist disarmers in the Marx media including TV scammers have been suppressing the truth to sell fake news since 1945 and in a repetition of the 1920s and 1930s gas war media lying for disarmament and horror news scams that caused disarmament and thus encouraged Hitler to initiate the invasions that set off WWII!

Glasstone's Effects of Nuclear Weapons exaggerations completely undermine credible deterrence of war: Glasstone exaggerates urban "strategic" nuclear weapons effects by using effects data taken from unobstructed terrain (without the concrete jungle shielding of blast winds and radiation by cities!), and omits the most vital uses and most vital effects of nuclear weapons: to *DETER* world war credibly by negating the concentrations of force used to invade Belgium, 1914 (thus WWI) and Poland (WWII). Disarmament and arms control funded propaganda lying says any deterrent which is not actually exploded in anger is a waste of money since it isn't being "used", a fraud apparently due to the title and content of Glasstone's book which omits the key use and effect of nuclear weapons, to *prevent* world wars: this is because Glasstone and Dolan don't even bother to mention the neutron bomb or 10-fold reduced fallout in the the Los Alamos 95% clean Redwing-Navajo test of 1956, despite the neutron bomb effects being analysed for its enhanced radiation and reduced thermal and blast yield in detail in the 1972 edition of Dolan's edited secret U.S. Department of Defense Effects Manual EM-1, "Capabilities of Nuclear Weapons", data now declassified yet still being covered-up by "arms control and disarmament" liars today to try to destroy credible deterrence of war in order to bolster their obviously pro-Russian political anti-peace agenda. "Disarmament and arms control" charlatans, quacks, cranks, liars, mass murdering Russian affiliates, and evil genocidal Marxist media exposed for what it is, what it was in the 1930s when it enabled Hitler to murder tens of millions in war .



ABOVE: 11 May 2023 Russian state TV channel 1 loon openly threatens nuclear tests and bombing UK. Seeing how the Russian media is under control of Putin, this is like Dr Goebbels rantings, 80 years past. But this doesn't disprove the world war threat any more than it did with Dr Goebbels. These people, like the BBC here, don't just communicate "news" but attempt to do so selectively and with interpretations and opinions that set the stage for a pretty obviously hate based political agenda with their millions of viewers, a trick that worked in the 1st Cold War despite Orwell's attempts to lampoon it in books about big brother like "1984" and "Animal Farm". ***When in October 1962 the Russians put nuclear weapons into Cuba in secret without any open "threats", and with a MASSIVELY inferior overall nuclear stockpile to the USA (the USA had MORE nuclear weapons, more ICBMs, etc.), the media made a big fuss, even when Kennedy went on TV on 22 October and ensured no nuclear "accidents" in Cuba by telling Russia that any single accidentally launched missile from Cuba against any Western city would result in a FULL RETALITORY STRIKE ON RUSSIA. There was no risk of nuclear war then except by accident, and Kennedy had in his 25 May 1961 speech on "Urgent National Needs" a year and a half before instigated NUCLEAR SHELTERS in public basement buildings to help people in cities survive (modern concrete buildings survive near ground zero Hiroshima, as proved by declassified USSBS reports kept covered up by Uncle Sam). NOE THAT THERE IS A CREDIBLE THREAT OF NUCLEAR TESTS AND HIROSHIMA TYPE INTIMIDATION STRIKES, THE BBC FINALLY DECIDES TO SUPPRESS NUCLEAR NEWS SUPPOSEDLY TO HELP "ANTI-NUCLEAR" RUSSIAN PROPAGANDA TRYING TO PREVENT US FROM GETTING CREDIBLE DETERRENCE OF INVASIONS, AS WE HAD WITH THE W79 UNTIL DISARMERS REMOVED IT IN THE 90s! This stinks of prejudice, the usual sort of hypocrisy from the 1930s "disarmament heroes" who lied their way to Nobel peace prizes by starting a world war!***

The facts from Hiroshima and Nagasaki for the shielding of blast and radiation effects by modern concrete buildings in the credible nuclear deterrence of invasions (click here for data) which - unlike the countervalue drivel that failed to prevent WW2 costing millions of human lives - worked in the Cold War despite the Western media's obsession with treating as Gospel truth the lying anti-nuclear propaganda from Russia's World Peace Council and its allies (intended to make the West disarm to allow Russian invasions without overwhelming, effective deterrence or opposition, as worked in Ukraine recently)!

Realistic effects and credible nuclear weapon capabilities are required now for deterring or stopping aggressive invasions and attacks which could escalate into major conventional or nuclear wars. Credible deterrence necessitates simple, effective

protection against concentrated and dispersed invasions and bombing. The facts can debunk massively inaccurate, deliberately misleading CND "disarm or be annihilated" pro-dictatorship ("communism" scam) political anti-nuclear deterrence dogma. Hiroshima and Nagasaki anti-nuclear propaganda effects lies on blast and radiation for modern concrete cities is debunked by solid factual evidence kept from public sight for political reasons by the Marx-media, which is not opposed by the fashion-obsessed remainder of the media, and so myths sneak into "established pseudo-wisdom" by the back-door.

Monday, May 15, 2023

Western tactical neutron bombs were disarmed after Russian propaganda lie. Russia now has over 2000 ... a reposting of the 2022 post with improvements & revisions NUKEGATE (updated: 2024)

Nuclear Equivalent of Conventional Wars
damage area scales as W $^{2/3}$ instead of directly with yield

War	Bombs Dropped (Million Tons)	Nuclear Equivalent Yield (MT TNT)
WWII	3.4	215
Korea	0.65	41
Vietnam	7.6	460

The point is, conventional wars when scaled non-linearly with bomb yield, produce similar damage to nuclear wars if targets are similar.

Note: fallout radiation/knockout blow stuff is analogous to the mustard gas and 12,000 tons of Nazi tabun nerve gas "escalation risks" of WWII

Because damage or fallout hazard area scales as only someth W^{2/3} instead of directly with yield, the increase in nuclea over conventional yields is not enough to negate the fall in n stockpiles, as compared to conventional stockpiles.

E.g., a megaton dropped during WWII or Vietnam as 100kg meant 10,000,000 bombs. If each bomb devastated area A, the total area devastated was 10,000,000A.

But for a single nuclear megaton bomb, the damaged areas 10,000,000A, but only about A(10,000,000^{2/3}) = 46,400

Therefore, you clearly need 10,000,000/46,400 = 215 megat bombs to cause the same damage as a single megaton in th of typical WWII bombs (100 of TNT each, typically).

W^{2/3} scaling ignores blast attenuation by damage done

TWO POINTS FROM THIS: (1) BECAUSE NUCLEAR SHOCKPILES ARE IN THE THOUSANDS WHEREAS TENS OR HUNDREDS OF MILLION BOMBS ARE USED IN LARGE CONVENTIONAL WARS, THE SCALING LAWS MEAN SIMILAR DAMAGE, (2) ONLY NUCLEAR BOMBS DETER

Empirical data (above, calculated by Joseph Friedlander) proves that the amount of collateral damage and collateral (large area) casualties per unit of explosive energy *decreases as the yield of the explosion increases.* (The small effect from increased blast duration at higher yields is more than negated by the increasing absorption of energy in causing damage, depleting blast pressure by irreversibly using up blast energy on larger targets where the number of buildings destroyed in any given radial line increases as yield is scaled up! Similarly, the higher mushroom cloud results in a large average arrival time of fallout, allowing more decay to occur before the majority of the fallout from higher yield surface bursts arrives downwind, thus preventing fallout casualties from scaling directly with yield.) The result of correct (non-linear) yield-area scaling is that large conventional wars involve tens or hundreds of millions of 0.1 ton (100 kg) TNT

equivalent explosions have a similar damaging effect to smaller nuclear stockpiles (thousands), so that the overall effects of large nuclear and large conventional wars are similar. Standard lying propaganda to the contrary is based on applying open desert and Hiroshima data (for wood frame city centre buildings) to modern cities and ignoring simple standard civil defense (such as target evacuation or sheltering in concrete buildings and subways).

In the 1980s after Afghanistan was invaded by Moscow, Reagan ordered low yield neutron bombs (with fusion stages stored securely in the USA) to deter further enemy invasions, and an arms race to bankrupt Russia. These neutron bombs unfortunately were quickly disarmed and even the only UK tactical deterrent of invasions the WE177 was disarmed in 1998! If the anti-nuclear people have their way, the world will go back to 1914/1939 and conventional world wars in response to undeterred invasions (or indeed invasions actually triggered by conventional mobilizations of the August 1914 sort). Huge amounts of money are then spent on killing and destruction, destroying homes, families, countries. For some reason, the mass media has never debunked the "pacifists" who get democracies to disarm/appease terrorists, triggering wars. Much of the Western media seems hooked on encouraging the scams that create wars, starvation, and poverty.

ABOVE: **1981 standard Russian nuclear war civil defense manual *EVERYBODY SHOULD KNOW THIS*. People in rural areas had fallout shelters, while those caught out in the open were instructed to duck and cover to avoid displacement by blast winds, and injury by flying debris and the thermal flash.** Detailed calculations of the blast hardness of these shelters were published in **technical book form (linked here).**

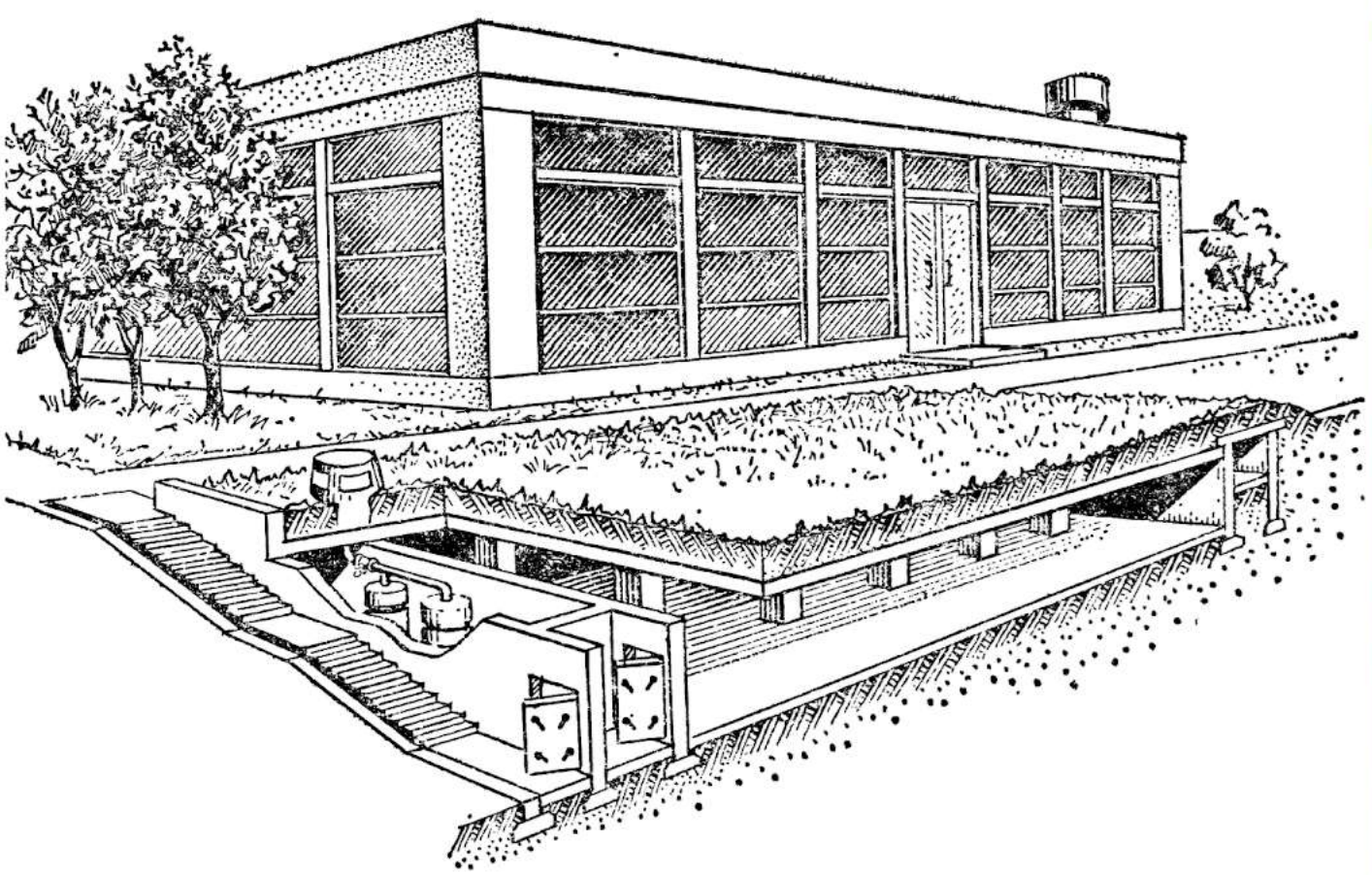
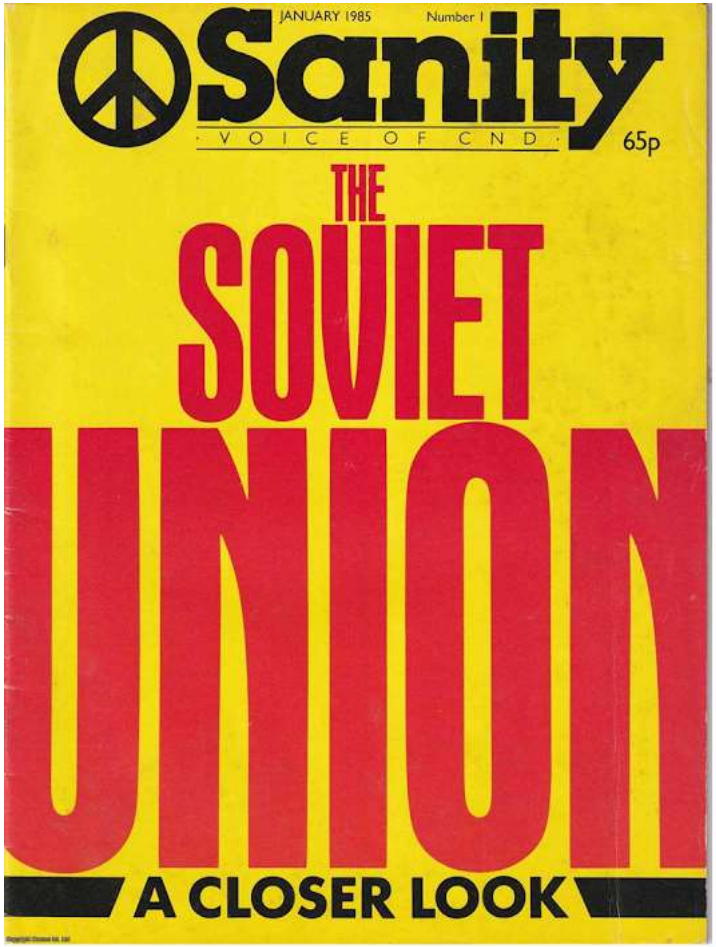


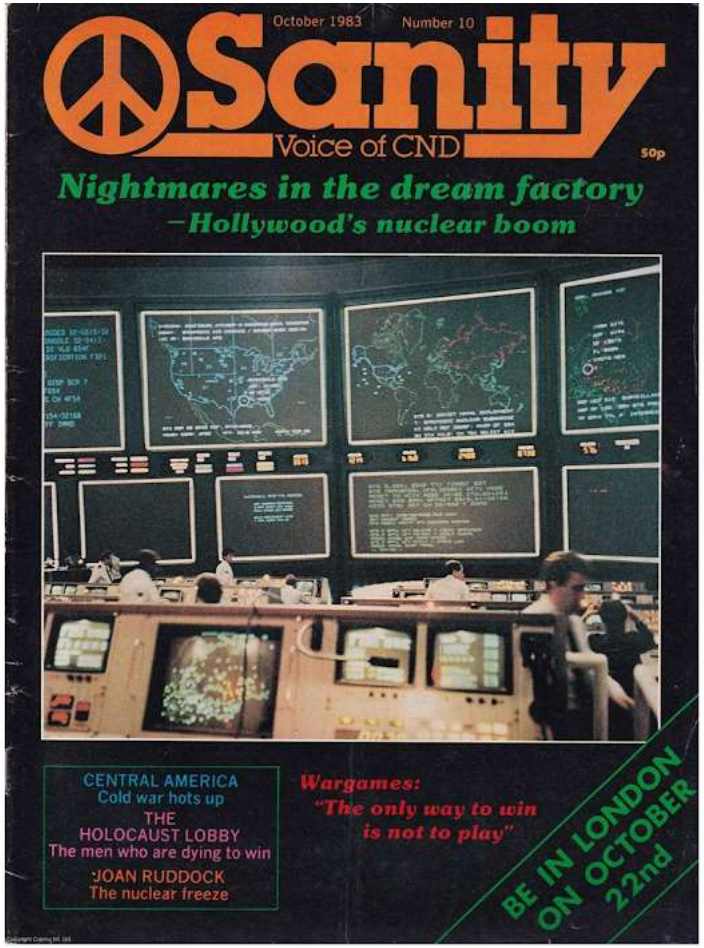
Рис. 4. Отдельно стоящее убежище

DOUBLE BLAST DOOR (VERY HARD) CITY SHELTER SHOWN IN THE 1981 EDITION OF THE STANDARD RUSSIAN NUCLEAR WAR CIVIL DEFENSE MANUAL "EVERYBODY SHOULD KNOW THIS".



ABOVE: Communist Nuclear Disaster propaganda used Hollywood nuclear war fiction not facts to obscenely lie about the war-deterring peace-inducing effects of nuclear weapons to "justify" claims that however bad life under Russian dictatorship was, it was a case of "Better Red than Dead", and more sinisterly, claimed that putting clock back to a pre-1945 era to "make the world safe" for conventional world war, such as 1914 or 1939 was progressive and "liberal". Note the appeal to children on the April 1986 cover of "Sanity", with its claim that removing the deterrent of WWIII will make a "future free from fear"! Below: Communist Nuclear Disaster propaganda against credible deterrence of conventional wars that cause waste destruction megadeaths as well as inflation and poverty, and the lying claim that 400 megatons will deter WWIII, based on no-civil defense whereas Russia had extensive civil defense!

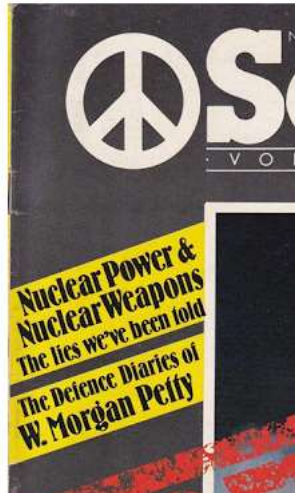

JANUARY 1985 Number 1
Sanity
VOICE OF CND
65p
THE SOVIET UNION
A CLOSER LOOK

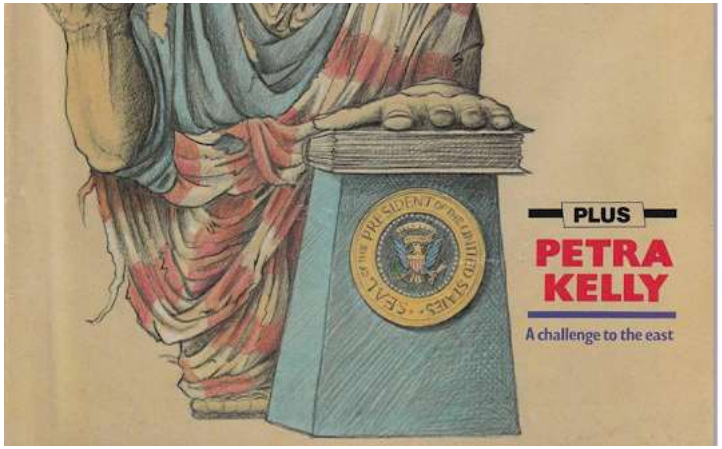

October 1983 Number 10
Sanity
Voice of CND
50p
Nightmares in the dream factory
—Hollywood's nuclear boom
CENTRAL AMERICA
Cold war hots up
THE HOLOCAUST LOBBY
The men who are dying to win
JOAN RUDDOCK
The nuclear freeze
Wargames:
"The only way to win is not to play"
BE IN LONDON ON OCTOBER 22nd


LET'S GET RID
FOR A FUTU

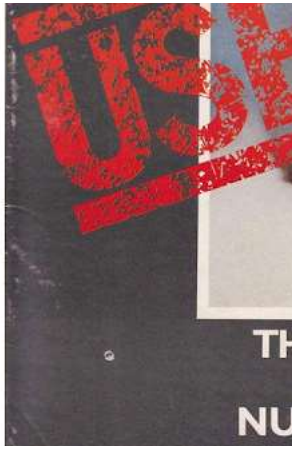

JULY 1984 Number 7
Sanity
65p
REAGAN
THE EVIDENCE
The President's disastrous arms control record

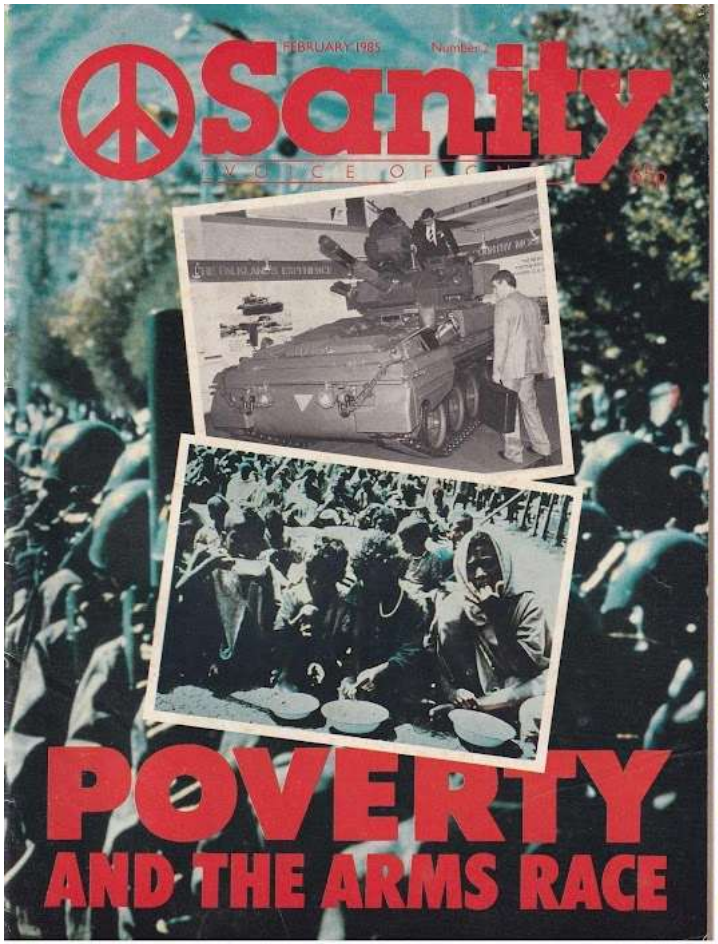

JUNE 1984 Number
Sanity
NUCLEAR

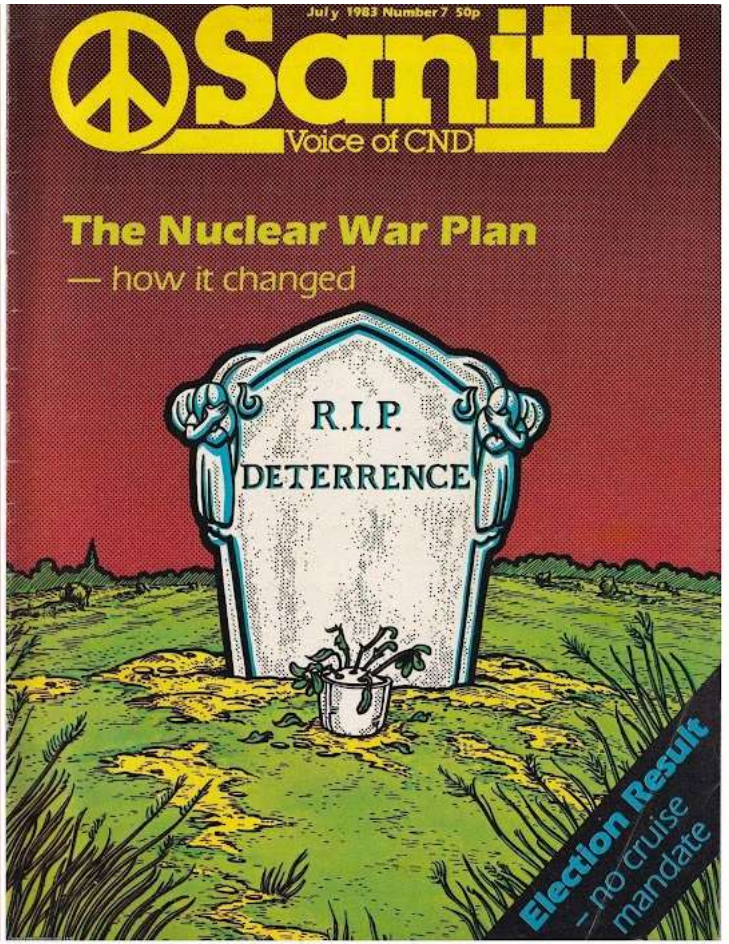

Nuclear Power & Nuclear Weapons
The lies we've been told
The Defence Diaries of
W. Morgan Petty

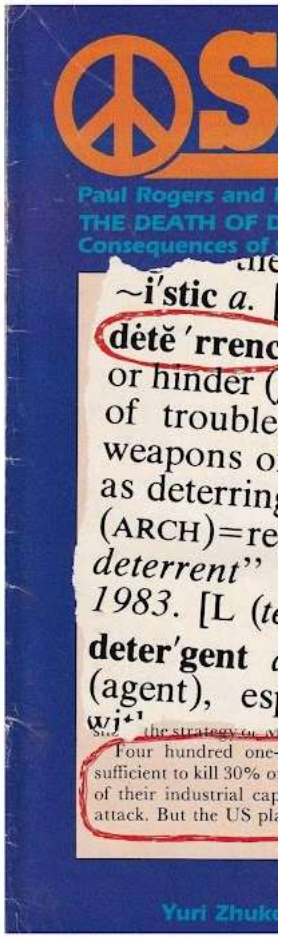

PLUS
PETRA KELLY
A challenge to the east


WINTER
DISARMAMENT DEBATE GETS BACK TO BASICS

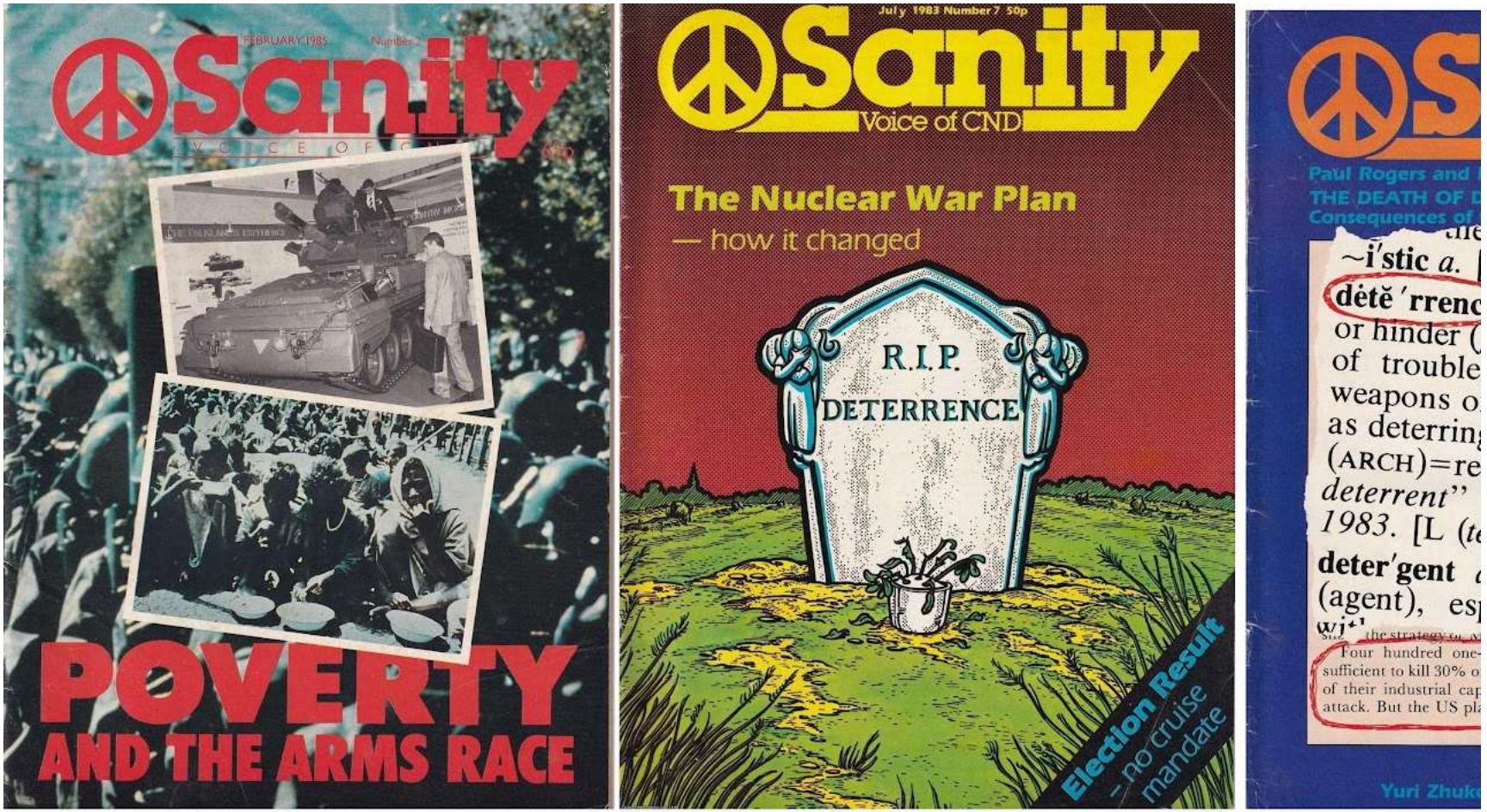








April 1984 Communist Nuclear Disaster propaganda IN-Sanity rag repeating US Defense Secretary McNamara's lie that only 400 megatons will deter WWIII, when in fact that is based on Glasstone "Effects of Nuclear Weapons" *no-civil defense lying propaganda!*



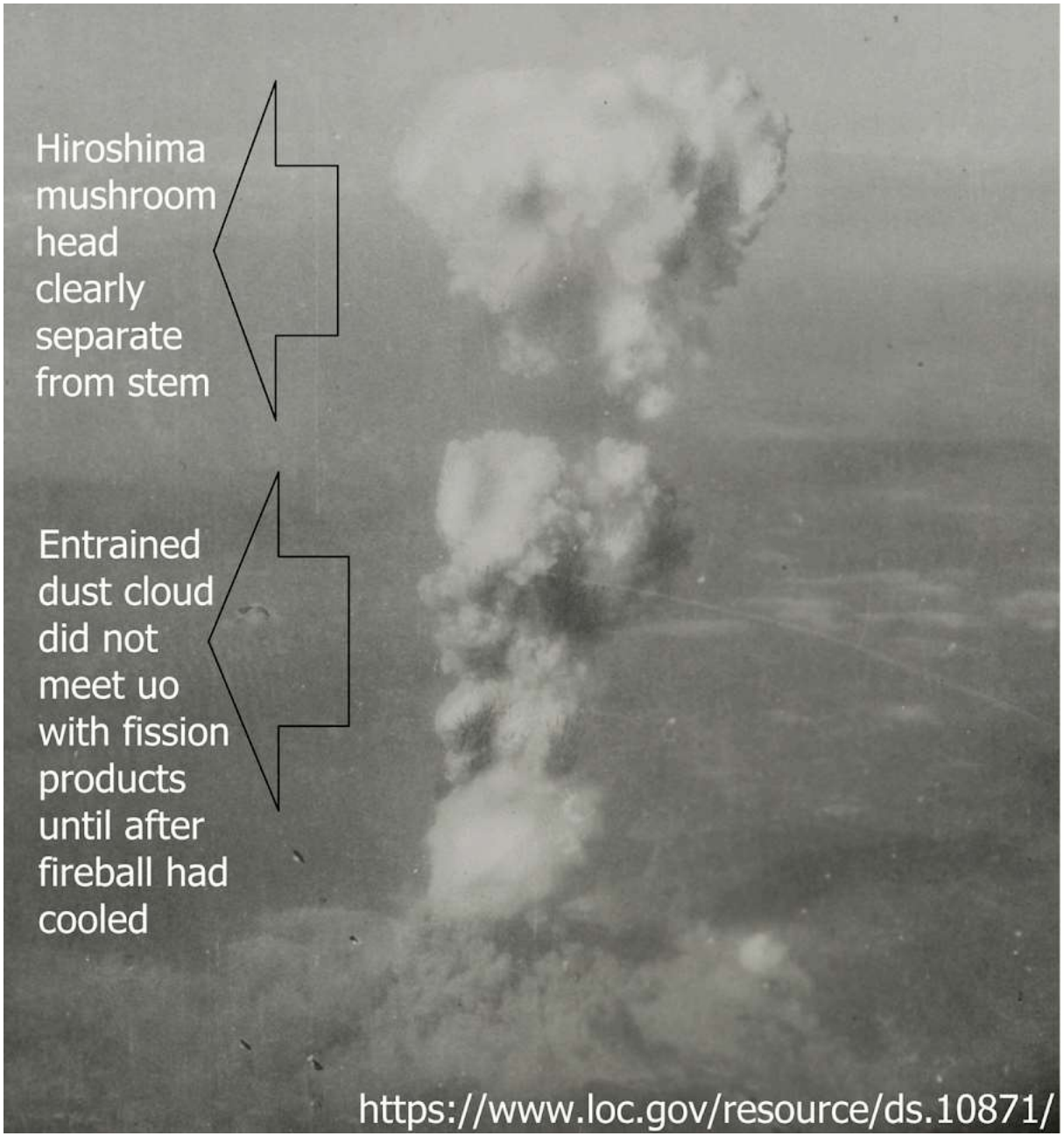
April 1984 Communist Nuclear Disaster propaganda IN-Sanity rag repeating US Defense Secretary McNamara's lie that only 400 megatons will deter WWIII, when in fact that is based on Glasstone "Effects of Nuclear Weapons" *no-civil defense lying propaganda!*





Honest (unblurred, not air-brushed) photos of half mile radius around around ground zero, Hiroshima, BEFORE attack (LEFT) and AFTER

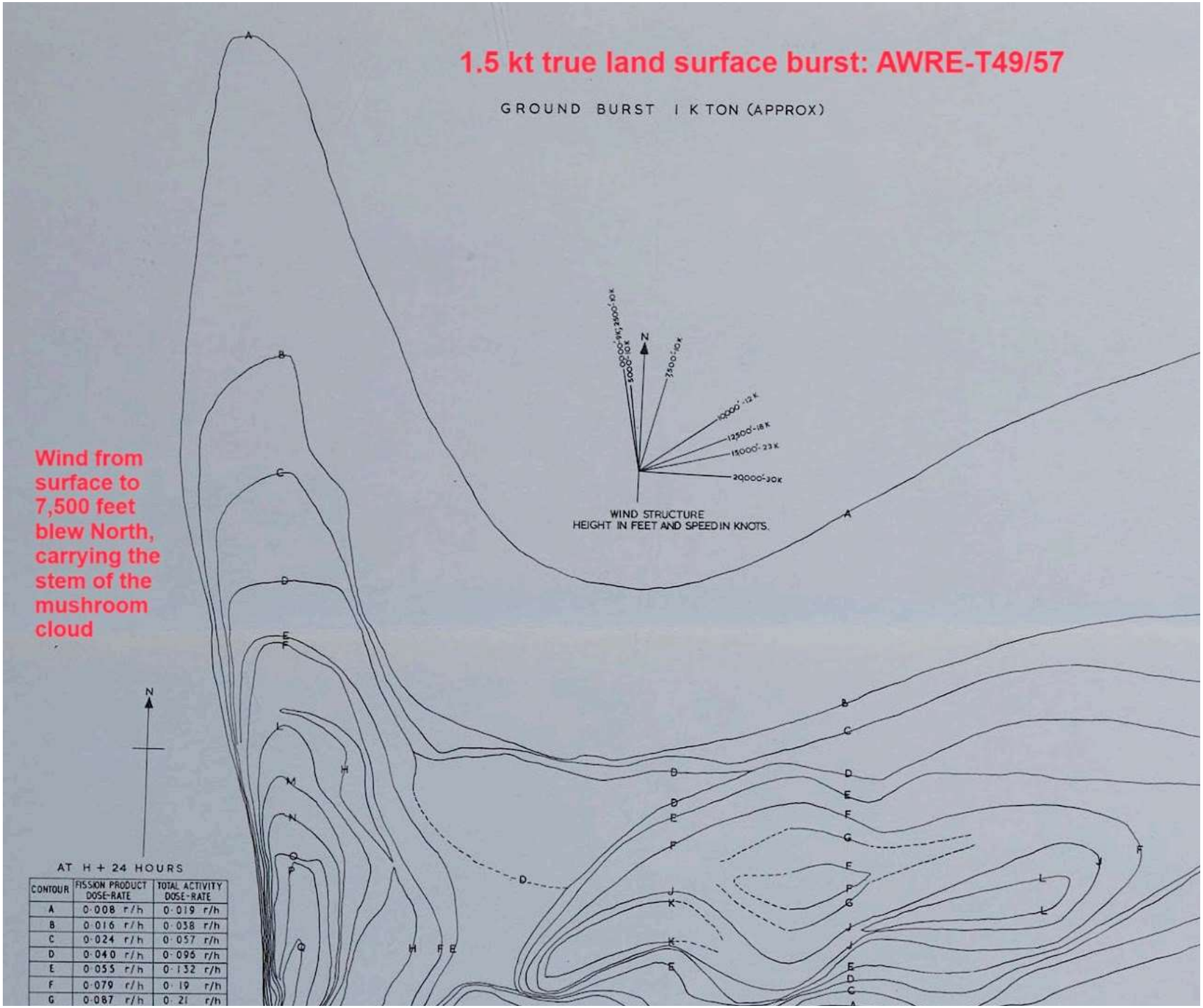
Originally released photo of Hiroshima AFTER attack showed no surviving buildings. Shadows on this HONEST photo show that most mo
90% of the Hiroshima buildings were wooden with breakfast charcoal braziers that were upset by blast, causing firestorm.





Similar cloud from Dog

1.5 kt true land surface burst: AWRE-T49/57



CONTOUR	FISSION PRODUCT DOSE-RATE	TOTAL ACTIVITY DOSE-RATE
A	0·008 r/h	0·019 r/h
B	0·016 r/h	0·038 r/h
C	0·024 r/h	0·057 r/h
D	0·040 r/h	0·096 r/h
E	0·055 r/h	0·132 r/h
F	0·079 r/h	0·19 r/h
G	0·087 r/h	0·21 r/h

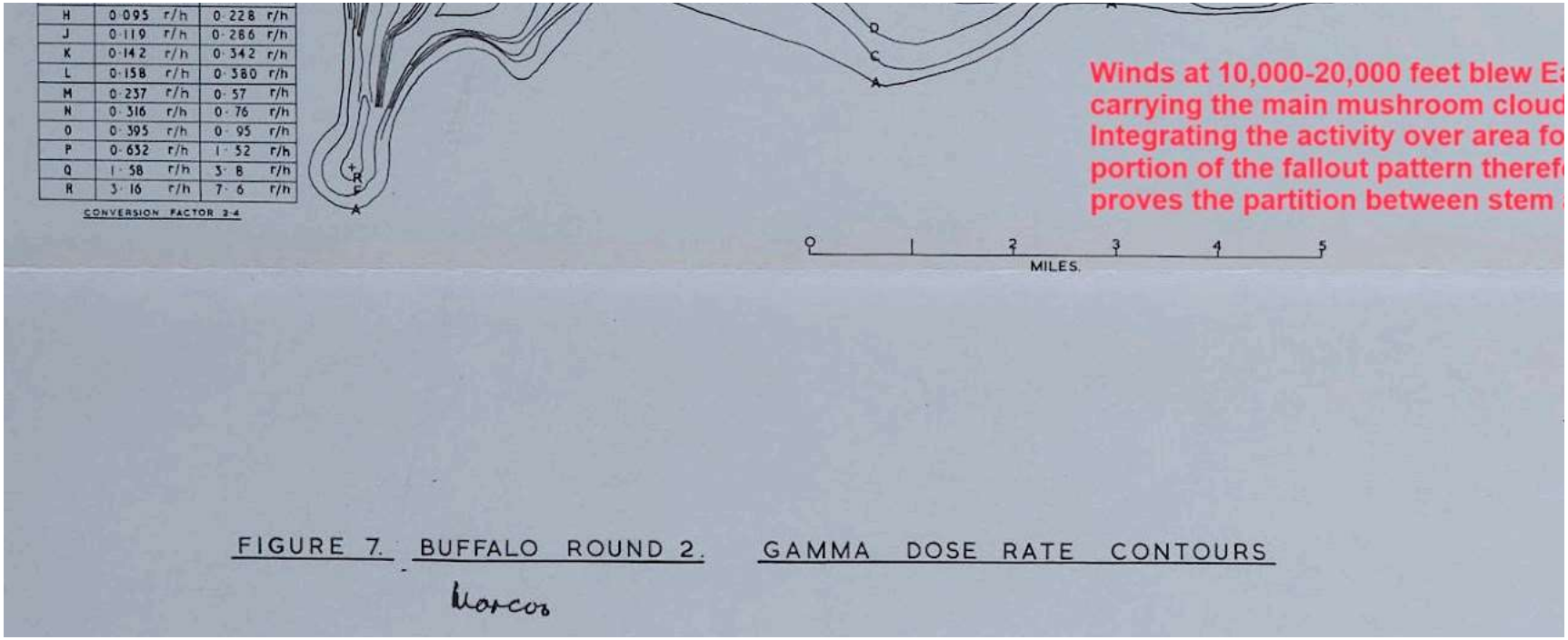
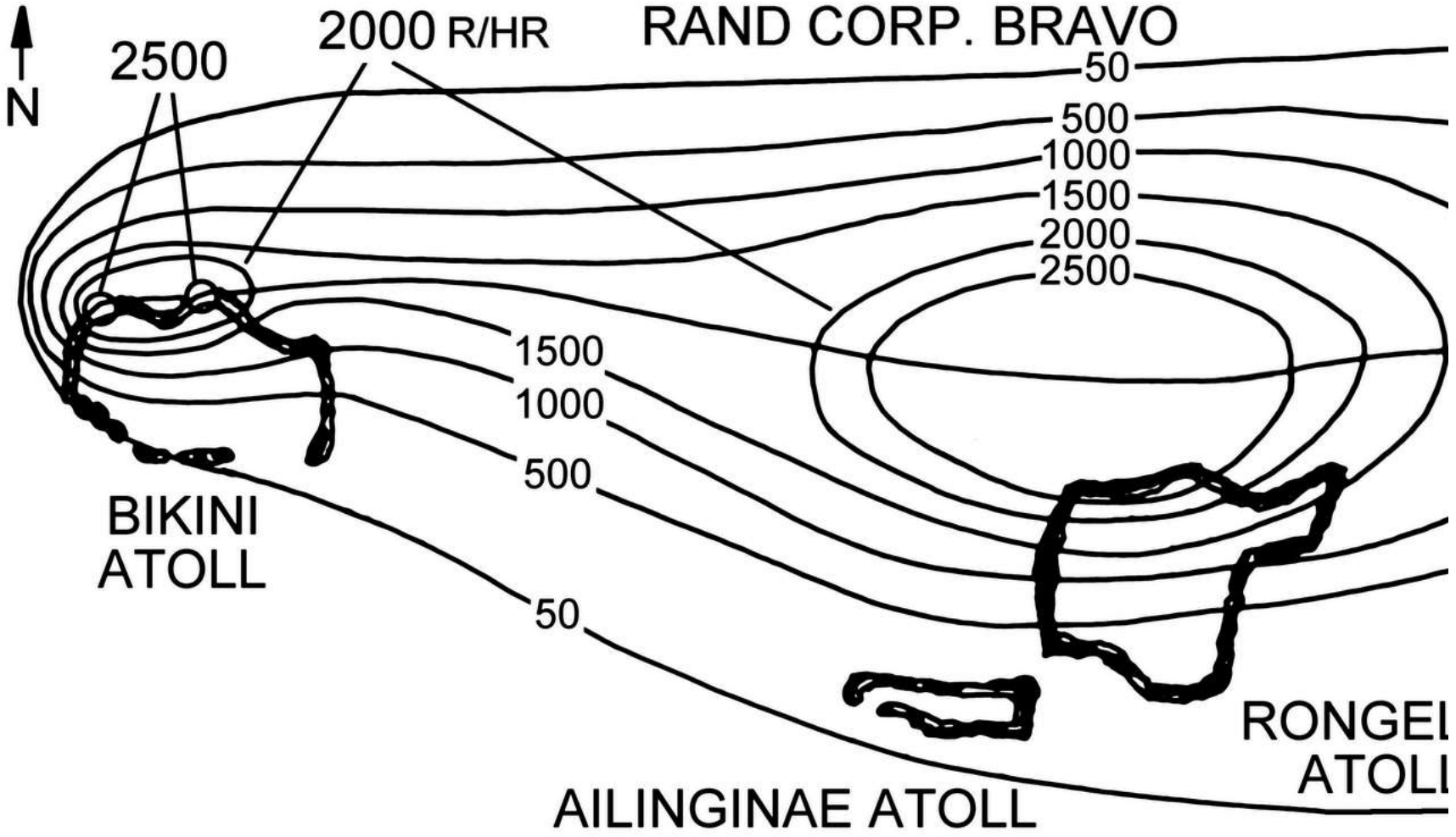
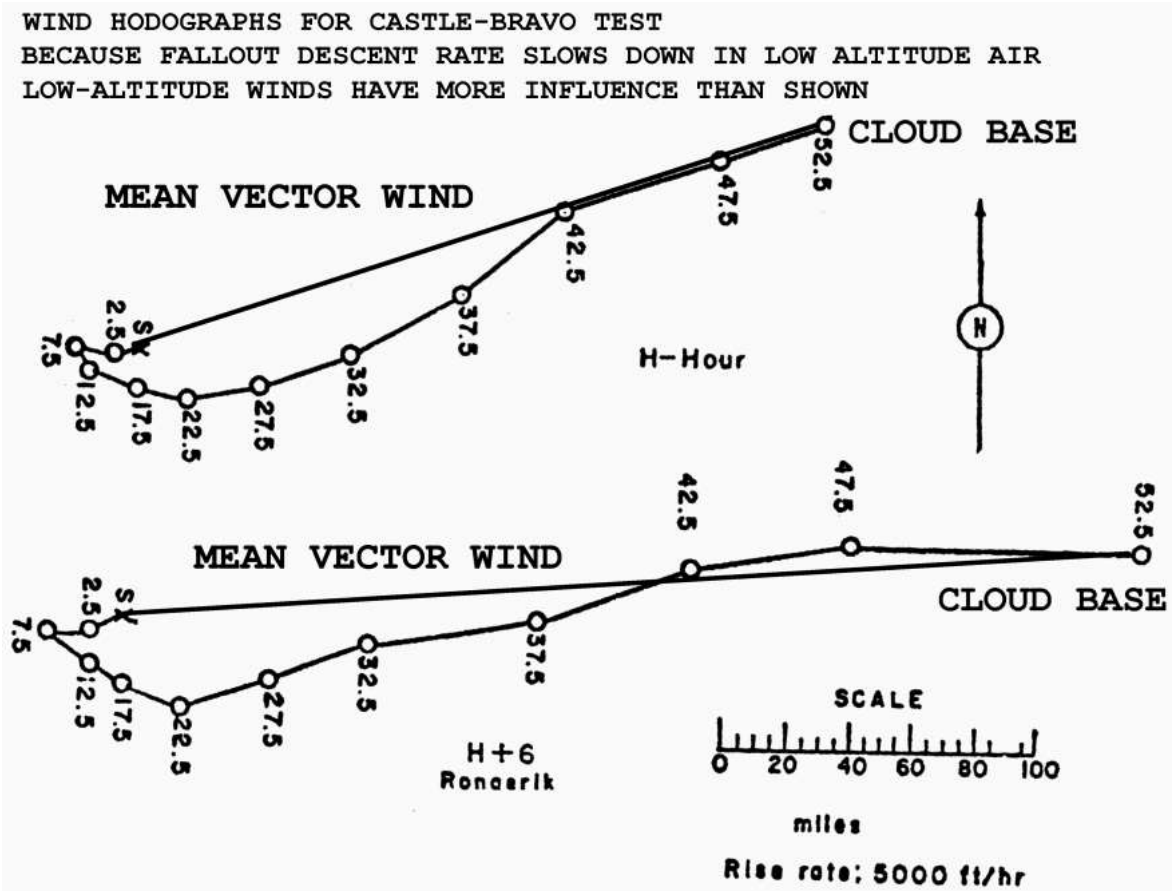
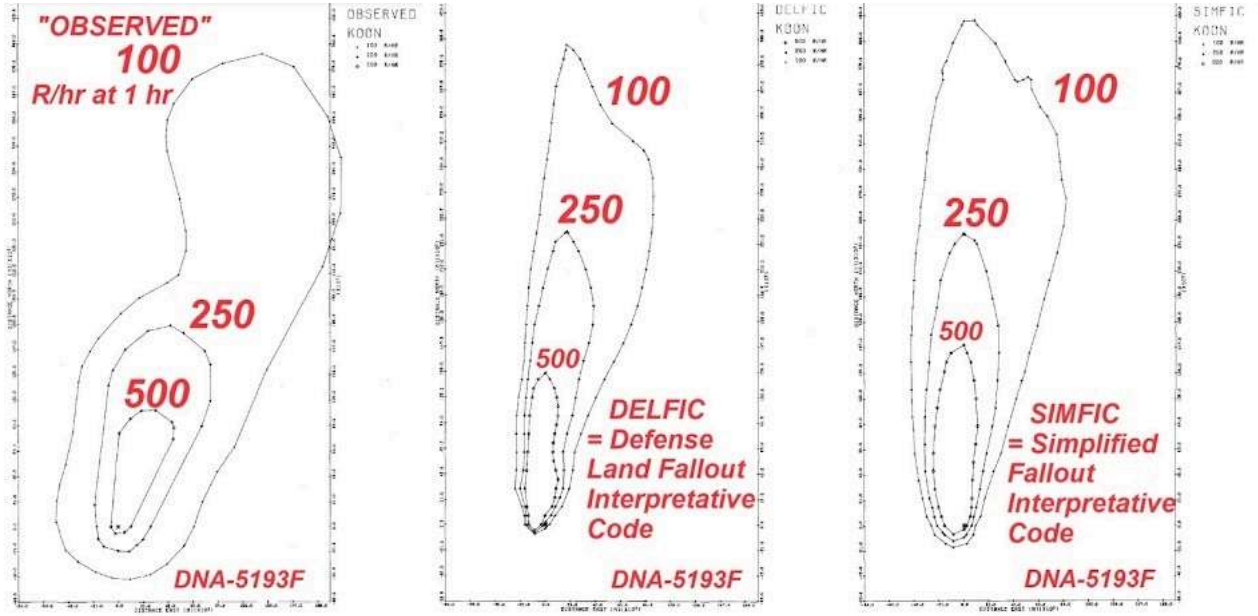


FIGURE 7. BUFFALO ROUND 2. GAMMA DOSE RATE CONTOURS

Marcos


RAND CORP. BRAVO
N
2500
2000 R/HR
50
500
1000
1500
2000
2500
1500
1000
500
50
BIKINI
ATOLL
RONGEL
ATOLL
AILINGINAE ATOLL


WIND HODOGRAPHS FOR CASTLE-BRAVO TEST
BECAUSE FALLOUT DESCENT RATE SLOWS DOWN IN LOW ALTITUDE AIR
LOW-ALTITUDE WINDS HAVE MORE INFLUENCE THAN SHOWN
CLOUD BASE
MEAN VECTOR WIND
52.5
47.5
42.5
37.5
32.5
27.5
22.5
17.5
12.5
7.5
2.5
SX
H-Hour
N
MEAN VECTOR WIND
CLOUD BASE
H+6
Ronderik
SCALE
0 20 40 60 80 100
miles
Rise rate: 5000 ft/hr



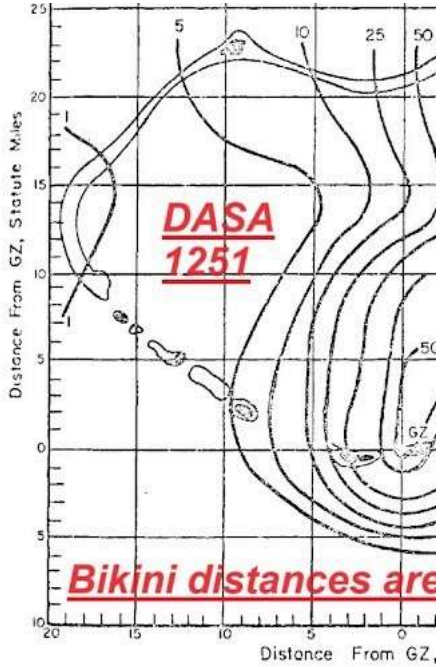


Figure 48. Operation CASTLE – On-site dose rate

"... most of the [100 kt fission, 110 kt total yield, Castle-] Koon pattern area was covered by an array of fallout collection stations, so this pattern is probably reasonably accurate."
- Hillyer G. Norment, "SIMFIC: A Simple, Efficient Fallout Model," DNA 5193F, page 29.

Above: FAKE distan
Atoll 110kt surface b
fallout map: 500 R/h
6 miles (10 km) long

Observed/DELFIC/SIMFIC

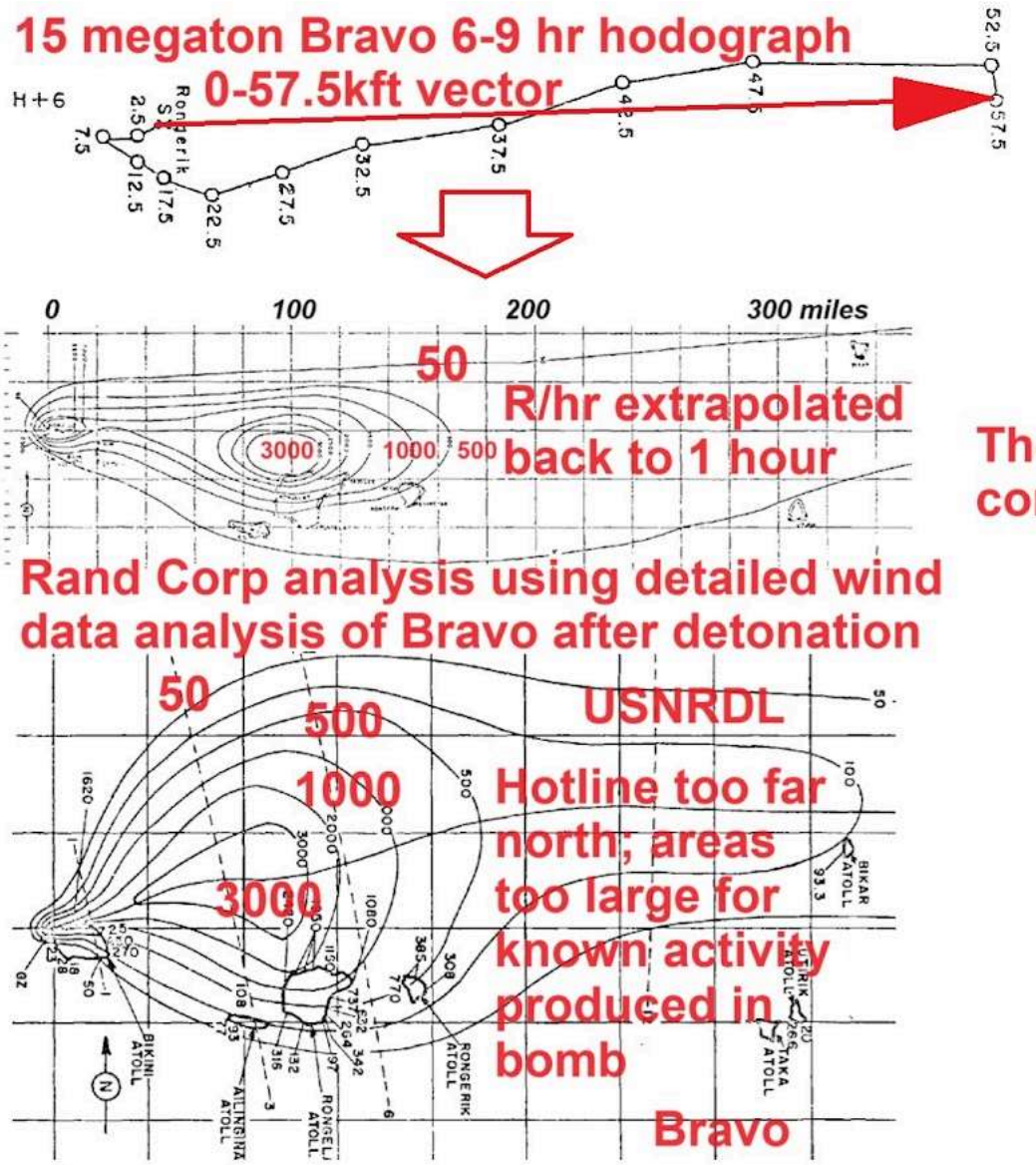
Contour (Roentgen hr^{-1})	Area (km^2)	Hotline Length (km)
500	32.0/26.0/44.0	10.2/12.5/14.9
250	122/87.3/116	17.3/24.2/24.1
100	550/261/374	41.0/39.5/41.6

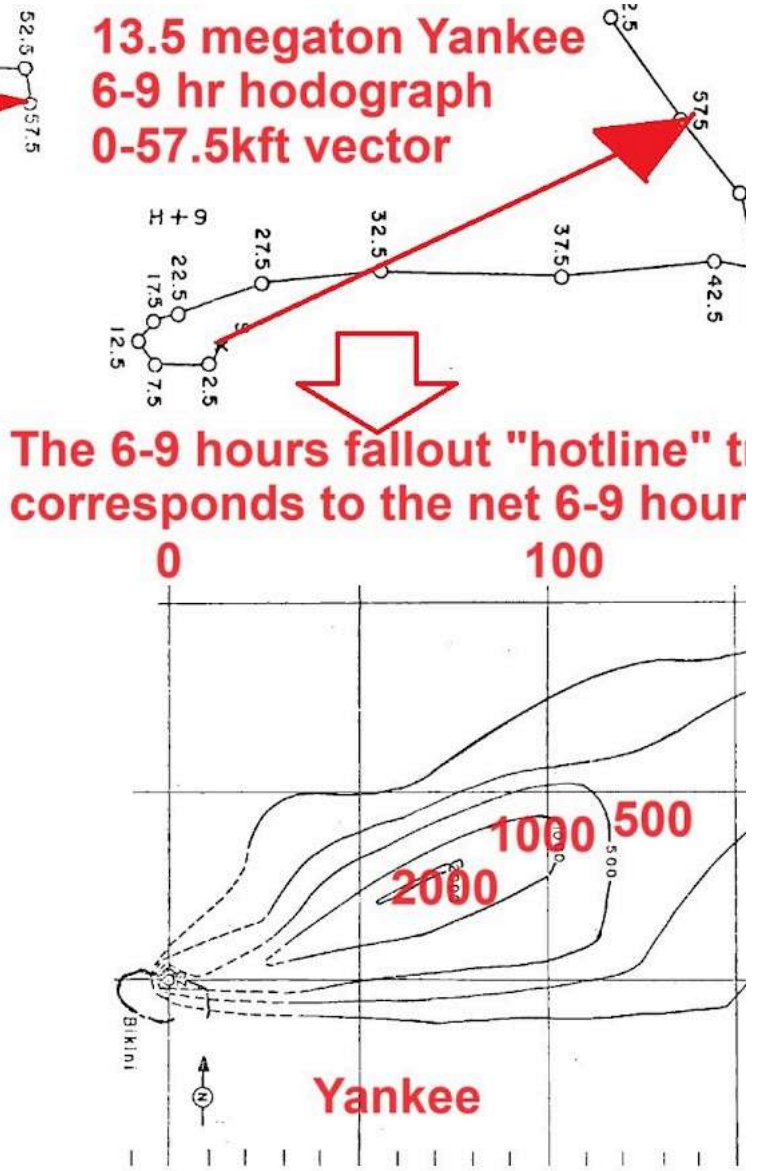
FAKE FAKE

Problem: the "probably reasonably accurate" Castle-Koon "observed" pattern is based on a MASSIVELY exaggerated map scale in Operation Castle fallout report WT-915 (also in DASA1251)
Other surface tests were very low yield or else over open ocean!!

The Western side of th
165.2 degrees East, wh
island in the Bikini Ato
degrees East: since th
miles per degree by de
Bikini Atoll is therefore
22 nautical miles. Sinc
to the square of the dis
constitutes a serious e
casualty calculations,

This debunks mainst

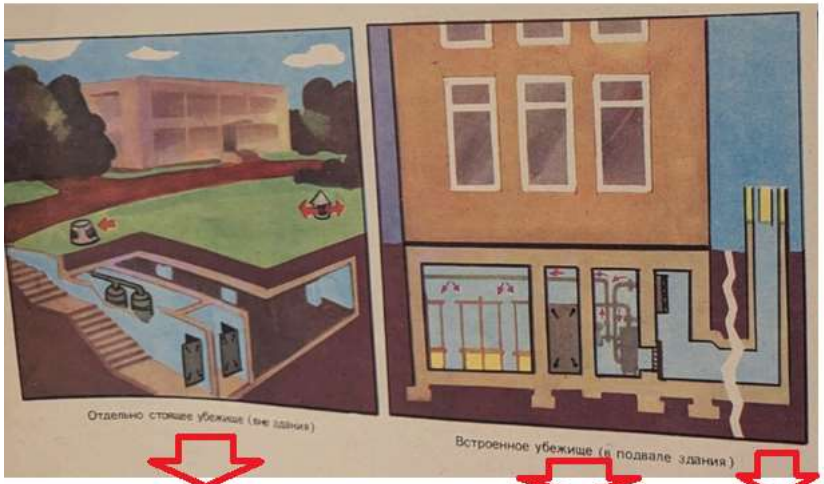




ABOVE: from our **earlier 2011 analysis of the Bravo fallout mythology (linked here)**. See also our **2015 post analyzing blast attenuation by cities (linked here),** and our 2006 quotation of **George R. Stanbury's August 1962 Restricted *Fission Fragments* magazine article using thermal shadowing data in modern cities for debunking firestorms (and firestorm soot induced "nuclear winter" hype, linked here): "We have often been accused of underestimating the fire situation ... we are unrepentant in spite of the television utterances of renowned academic scientists who know little about fire. ... there is a considerable degree of shielding of**

one building by another in general. ... In the Birmingham and Liverpool studies, where the most generous values of fire-starting chances were used, the fraction of buildings set on fire was rarely higher than 1 in 20. ... And this is the basis of the assertion that we do not think that fire storms are likely to be started in British cities by nuclear explosions, because in each of the five raids in which fire storms occurred (four on Germany - Hamburg, Darmstadt, Kassel, Wuppertal and a "possible" in Dresden, plus Hiroshima in Japan - it may be significant that all these towns had a period of hot dry weather before the raid) the initial fire density was much nearer 1 in 2. Take Hamburg for example: On the night of 27/28th July 1943, by some extraordinary chance, 190 tons of bombs were dropped into one square mile of Hamburg. This square mile contained 6,000 buildings, many of which were [multistorey wooden] medieval. Thus almost every other building [1 in 2 buildings] was set on fire during the raid itself, and when this happens it seems that nothing can prevent the fires from joining together, engulfing the whole area and producing a fire storm ... When the density was 70 tons/square mile or less the proportion of buildings fired during the raid was about 1 in 8 or less and under these circumstances, although extensive areas were burned out, the situation was controlled, escape routes were kept open and there was no fire storm."





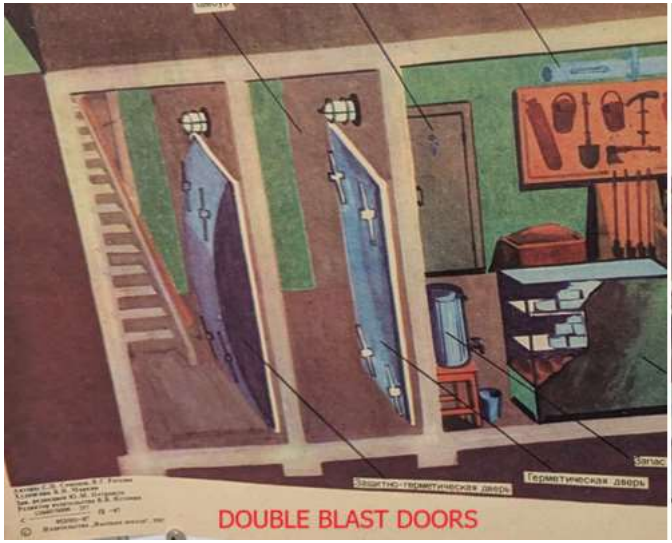
1987 USSR Nuclear War Shelters Poster by Yalansky Viktor Grigorievich, showing hard double blast doored reinforced basements, underground car parks, subway stations ("dual-use" shelters)

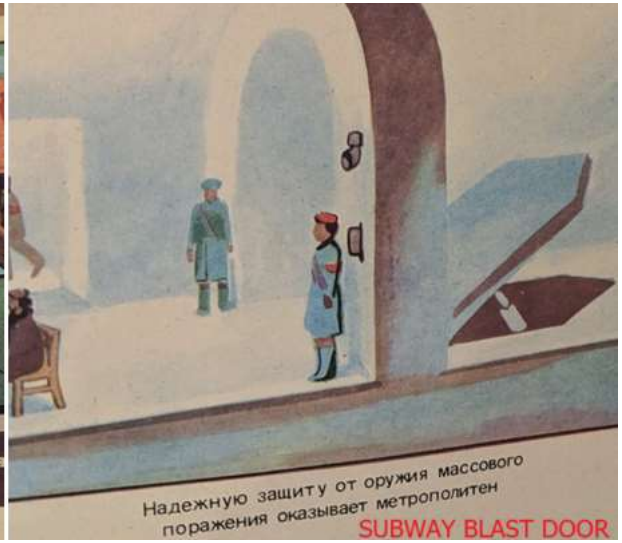
DOUBLE BLAST DOORS

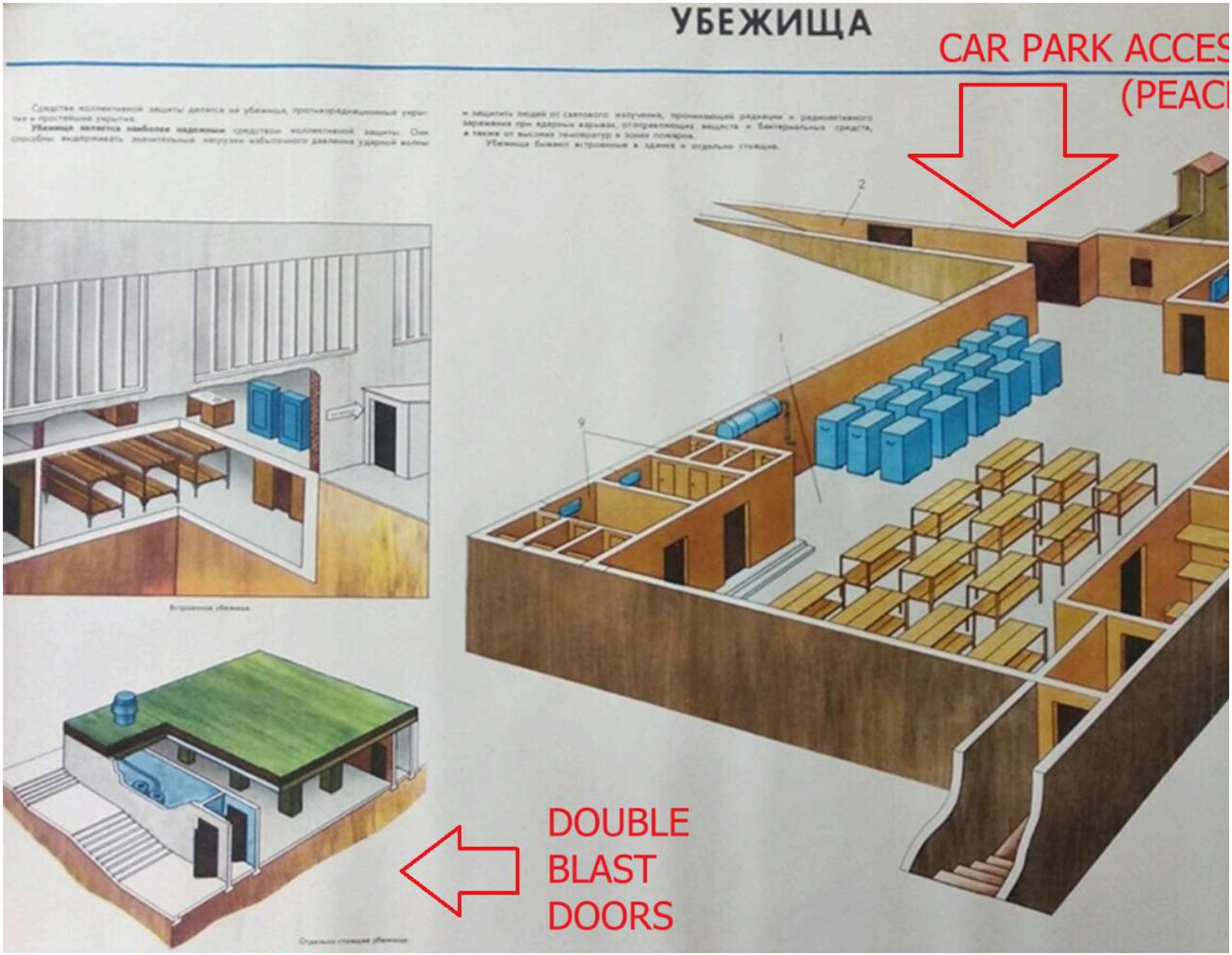
VENTILLATION SYSTEM ESCAPE EXIT






Защитно-герметическая дверь
Герметическая дверь
DOUBLE BLAST DOORS


Надежную защиту от оружия массового
поражения оказывает метрополитен
SUBWAY BLAST DOOR



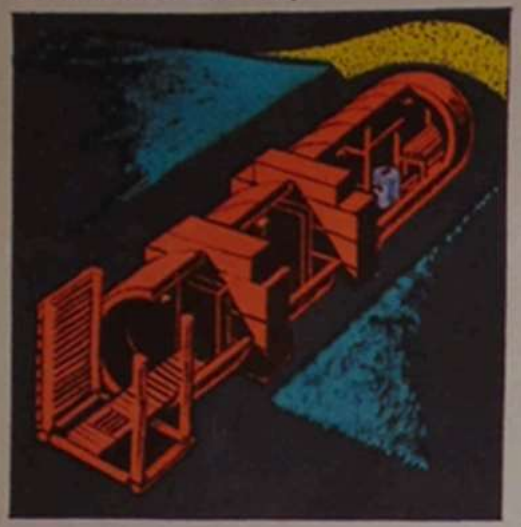
September 5, 1988 dual-use nuclear shelter/underground car park post

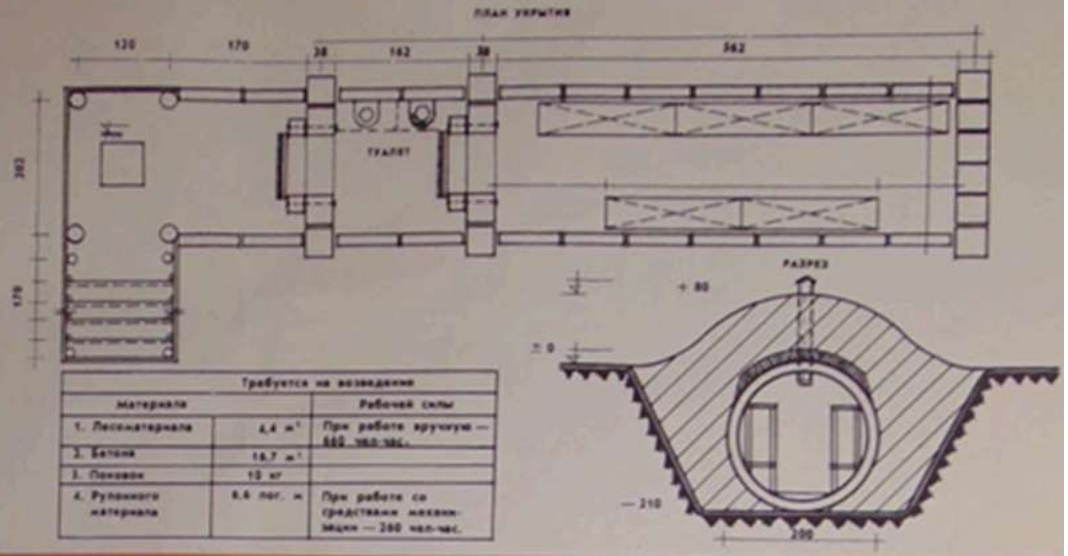


Приспособление подземного перехода под быстровозводимое убежище

УКРЫТИЯ

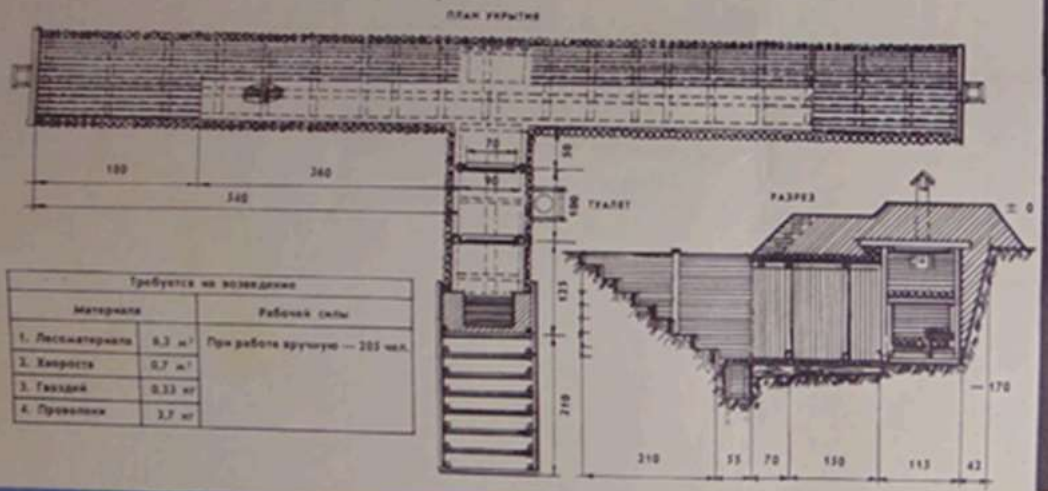
УКРЫТИЯ ВОЗВОДЯТСЯ В ПРИГОРОДНЫХ И ЗАГОРОДНЫХ ЗОНАХ ДЛЯ РАЗМЕЩЕНИЯ И ЗАЩИТЫ НЕРАБОТАЮЩИХ СМЕН ПРОМЫШЛЕННОГО ОБЪЕКТА (ФОРМИРОВАНИЙ ГО), А ТАКЖЕ РАБОЧИХ И СЛУЖАЩИХ ПРЕДПРИЯТИЙ (СОВХОЗОВ, КОЛХОЗОВ) И ИХ СЕМЕЙ, РАСПОЛОЖЕННЫХ В ЭТИХ РАЙОНАХ. УКРЫТИЯ ВОЗВОДЯТСЯ, КАК ПРАВИЛО, ИЗ ЭЛЕМЕНТОВ СБОРНОГО ЖЕЛЕЗОБЕТОНА ИЛИ ДЕРЕВЯННЫХ КОНСТРУКЦИЙ. УКРЫВАЮЩИЕСЯ ПОЛЬЗУЮТСЯ ПОСТОЯННЫМ ОБЪЕМОМ ВОЗДУХА В УКРЫТИИ, СЛЕДОВАТЕЛЬНО, УКРЫТИЕ ДОЛЖНО БЫТЬ ОБЕСПЕЧЕНО ЕСТЕСТВЕННОЙ ВЕНТИЛЯЦИЕЙ.



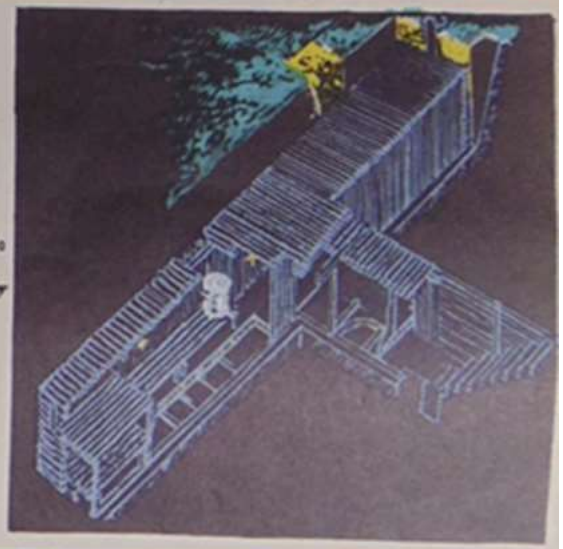


Требуется на возведение		
материала		Рабочей силы
1. Лесоматериала	4,4 м³	При работе вручную — 880 чел.-час.
2. Бетона	16,7 м³	
3. Проволоки	10 кг	
4. Рулонного материала	8,6 пог. м	При работе со средствами механизации — 260 чел.-час.

УКРЫТИЕ ИЗ ЖЕЛЕЗОБЕТОННЫХ КОЛЕЦ НА 20 ЧЕЛОВЕК



Требуется на возведение		
Материала		Рабочей силы
1. Лесоматериала	6,3 м³	При работе вручную — 205 чел.
2. Хвороста	0,7 м³	
3. Гвоздей	0,33 кг	
4. Проволоки	3,7 кг	



УКРЫТИЕ БЕЗВРУБОВОЙ КОНСТРУКЦИИ НА 20 ЧЕЛОВЕК С ОДНОРЯДНЫМ РАСПОЛОЖЕНИЕМ СИДЕНИЙ



УКРЫТИЕ ИЗ ДЕРЕВЯННЫХ КОНСТРУКЦИЙ НА 20 ЧЕЛОВЕК



September 19, 1980 printed double-blast doors dual use she



4) На улице — быстро иди в убежище (укрытие), которое укажет дежурный. 1983 dispersal/shelter poster

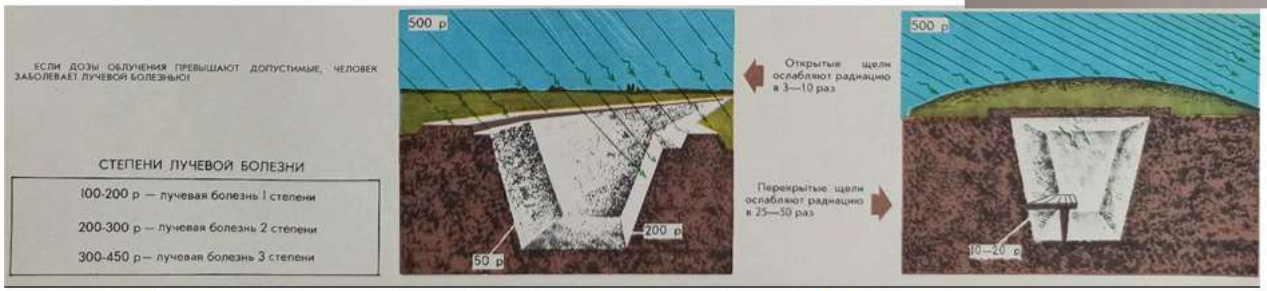


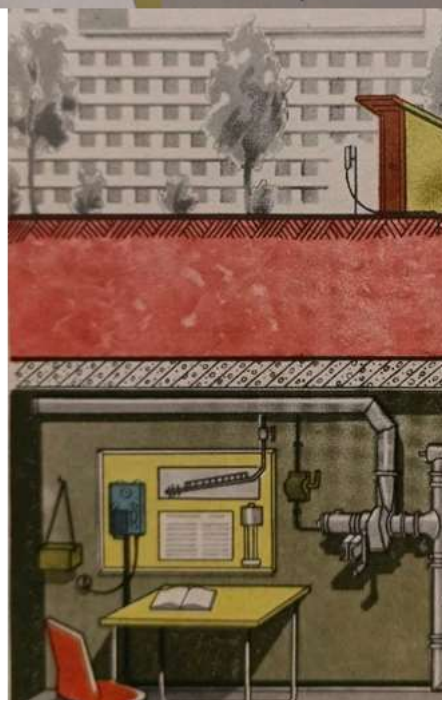
1) В школе — по указанию учителя быстро оденься, возьми противогаз (респиратор) и вместе с классом иди в убежище (укрытие).



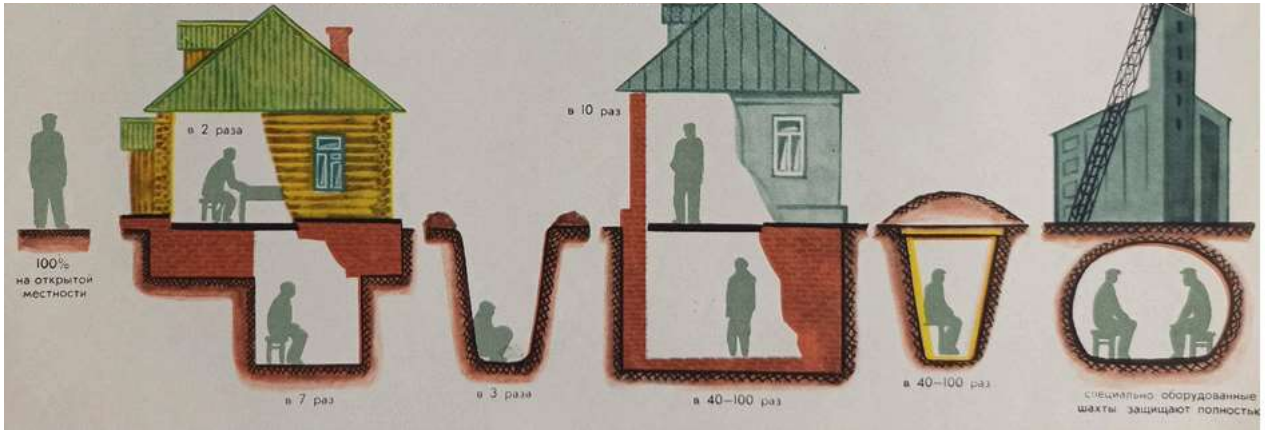
March 16, 1983 printed USSR cold war poster "Rules for using a gas mask"



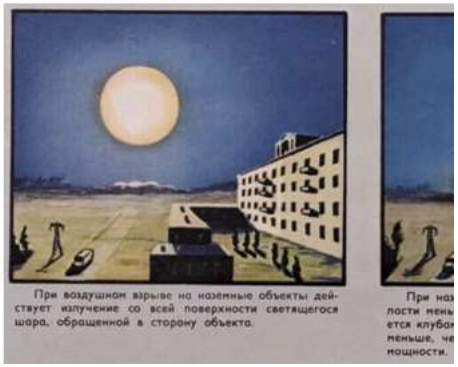







100%
на открытой
местности
в 2 раза
в 7 раз
в 3 раза
в 10 раз
в 40–100 раз
в 40–100 раз
Специально оборудованные
шахты защищают полностью




При воздушном взрыве на наземные объекты действует излучение со всей поверхности светящегося шара, обращенной в сторону объекта.

Extracts from Beria's № 163 final (28 October 1949) report to Stalin the 1949 Russian nuclear test data

Заключительный доклад Л.П.Берия И.В.Сталину о результатах испытания атомной бомбы

28 октября 1949 г.

Товарищу Сталину И.В.

Оптическими измерениями (произведенными при помощи специально сконструированных сверхскоростных фотокамер, дающих 600 000, 100 000 и 25 000 кадров в секунду, обычных кино- и аэрофотокамер, специальных спектрографов и других измерительных приборов, заранее установленных на дистанциях 1 800, 3 000 и 5 000 метров от центра взрыва)

(= Russia set up high speed cameras running at 600,000, 100,000 and 25,000 frames/second at 1.8, 3.0 and 5.0 km from ground zero to film fireball.)

Измерено, что поток теплового излучения взрыва составляет 4 % энергии деления всей массы плутония, составлявшей заряд атомной бомбы, испытанной 29 августа 1949 года.

(= The bomb's measured thermal yield was 4%.)

Gamma doses (R) гамма-лучей		Neutron doses (R) нейтронного		Reflected blast, tons/m^2 Давление отраженной ударной волны	
300 м	420 000	300 м	27 000 000	200 м	2 900 т/м^2
400 м	155 000	400 м	38 000	250 м	1 560
500 м	68 000	500 м	12 000	300 м	770
600 м	32 000	600 м	4 200	400 м	225
700 м	15 000	700 м	1 800	500 м	82
800 м	7 800	800 м	800	600 м	48
900 м	4 200			800 м	21
1 000 м	2 300	1 000 м	180	1 200 м	12,1
1 100 м	1 260			1 800 м	6,2
1 200 м	700	1 200 м	35	3 000 м	3,1
1 300 м	410			5 000 м	1,9
1 500 м	140				
1 600 м	80				

Действие взрывной волны на военную технику

Из всех видов боевой техники *наиболее уязвим* (самолеты): из 53 самолетов, установленных на опыт 500 до 4 000 метров, остались неповрежденными тол

Артиллерийское вооружение полностью разруше ров и значительно повреждено в радиусе 500 метро полного разрушения (*полного вывода из строя) тан* ним танкам в радиусе 350–500 метров нанесены силь

Воздушные *линии связи* сильно разрушены в рад бельные линии, проложенные на земле, в радиусе 50

(= Military effects:
Out of 53 aircraft exposed at 0.5 survived intact.
Field artillery and tanks were de and had significant damage out t
Ground-laid cables were destroy overhead cables were destroyed

***Animal Effects from Soviet Atmo Tests,* by V. A. Logachev and L. A Corporation, 2008, report ADA48 TR-07-38):**

"The medical/biological studie 8,000 experimental animals (c sheep, dogs, rabbits, guinea p basic ways to solve medical/b problems were by carrying ou that used animals in open are in military and civilian protect Animals were placed in more long-term structures, more th

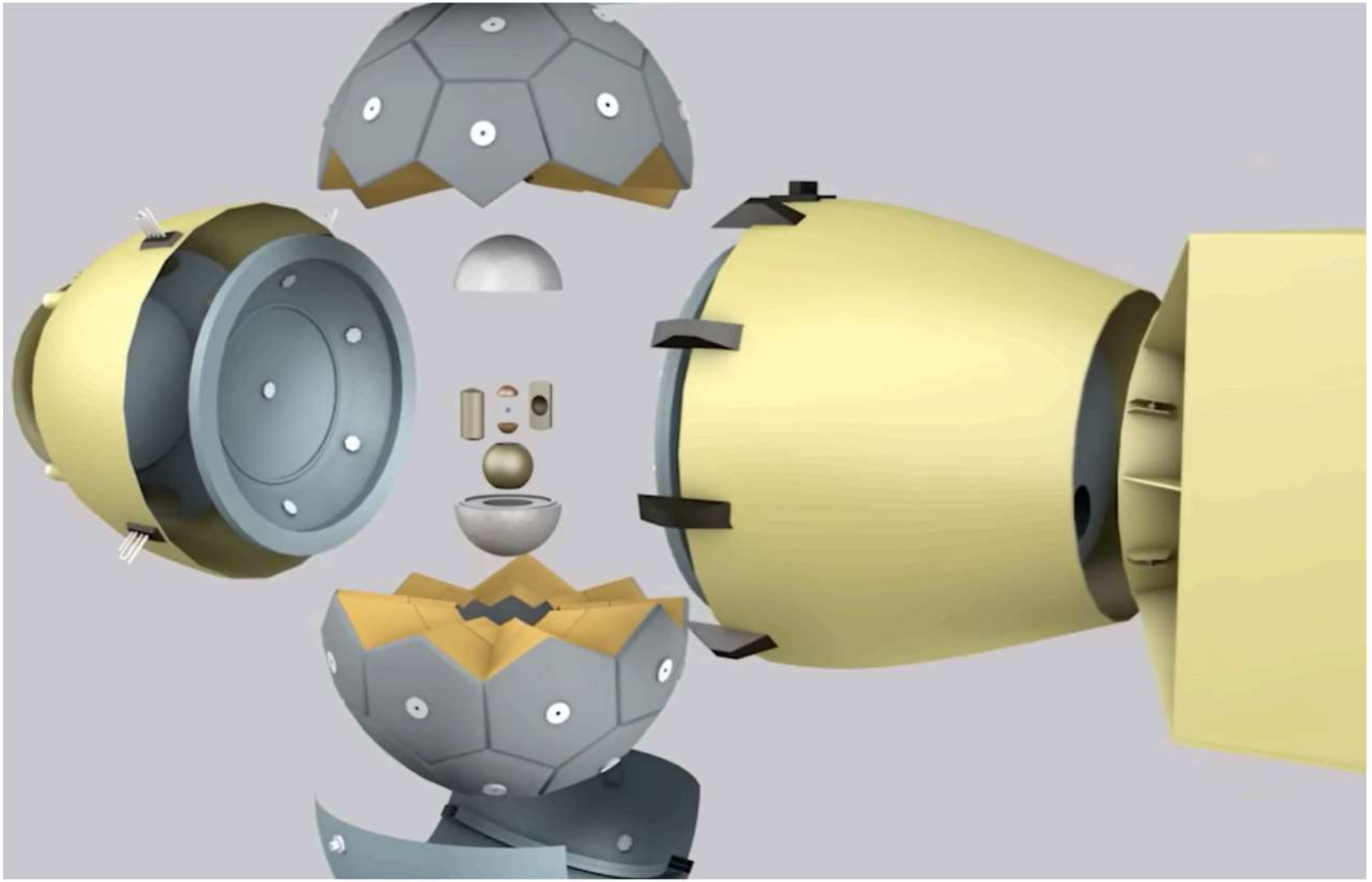
1 700 м	48	10 000 м	0,9
1 800 м	30		

На основании принятой для взрыва тротила зависимости давления ударной волны от расстояния и веса заряда специалисты установили, что тротиловый эквивалент атомной бомбы испытанной 29 августа 1949 г. конструкции, равен 11 000 тонн тротила.

(= Bomb's BLAST yield partition was 11 kt of TNT.)

items (tanks, armored person
automobiles, aircrafts etc.), a
and wooden houses."

Page 36: at the 1.6 megaton 19
burns occurred to animals in ho



Russian "exploded view" of the core capsule cylinder in the Nagasaki nuclear weapon, dropped on August 9, 1945.

ABOVE: **Debunking Hiroshima firestorm lying propagana by Samuel Glasstone's *Effects of Nuclear Weapons:* thermal radiation had no effect in causing the Hiroshima firestorm, which was due to the blast wave overturning now-obsolete city centre breakfast charcoal braziers in overcrowded wooden houses filled with paper screens, bamboo furnishings, inflammable futon beds. This is page 4 of the SECRET US Strategic Bombing Survey detailed fact-based report 92 volume 2 on Hiroshima, completely reversed by Glasstone's nuclear weapons effects propaganda book! This has been typeset and printed but only as a SECRET book; it has**

8. Evidence relative to ignition of combustible structures and materials by directly radiated heat from the atomic bomb and other ignition sources was obtained by interrogation and visual inspection of the entire city. Six persons who had been in reinforced-concrete buildings within 3,200 feet of air zero stated that black cotton black-out curtains were ignited by flash heat. A few persons stated that thin rice paper, cedarbark roofs, thatched roofs, and tops of wooden poles were afire immediately after the explosion. Dark clothing was scorched and, in some cases, was reported to have burst into flame from flash heat. A large proportion of over 1,000 persons questioned was, however, in agreement that a great majority of the original fires were started by debris falling on kitchen charcoal fires. Other sources of secondary fire were industrial-process fires and electric short circuits.

THE EFFECTS OF THE ATOMIC BOI ON HIROSHIMA, JAPA

Volume II

PAGE 4 OF "SECRET" CLASSIFIED REPORT, US STRATEGIC BOMBING SURVEY REPORT 9 PUBLISHED. THE FINDINGS WERE DELIBERATELY REVERSED FOR PROPAGANDA BY SA

SOURCE: https://archive.org/details/NuclearEffectsExaggerationsDebunked/Weapons' 20the%20Atomic%20Bomb%20on%20Hiroshima%20Japan%20SECRET%20Extracts,

NEVER been published by the US Government in its efforts to dupe people on the truth about the Hiroshima firestorm since August 6, 1945!

ABOVE: George R. Stanbury, OBE (UK Home Office Scientific Advisory Branch) worked on the thermal shielding problem for different altitudes of air burst and for surface bursts of varying yields from 1952-64, including writing a "popular" article in the Restricted classified August 1962 *Fission Fragments* magazine ("published" to a classified circulation list by the UK Government, Home Office Scientific Advisory Branch's civil defence science journal), *savagely debunking TV propaganda from fake "academic" experts who hadn't know*

~~CONFIDENTIAL~~ A12/723

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Authority in file No. SAG 79 3/3/1
Date 7-1-71 Initials

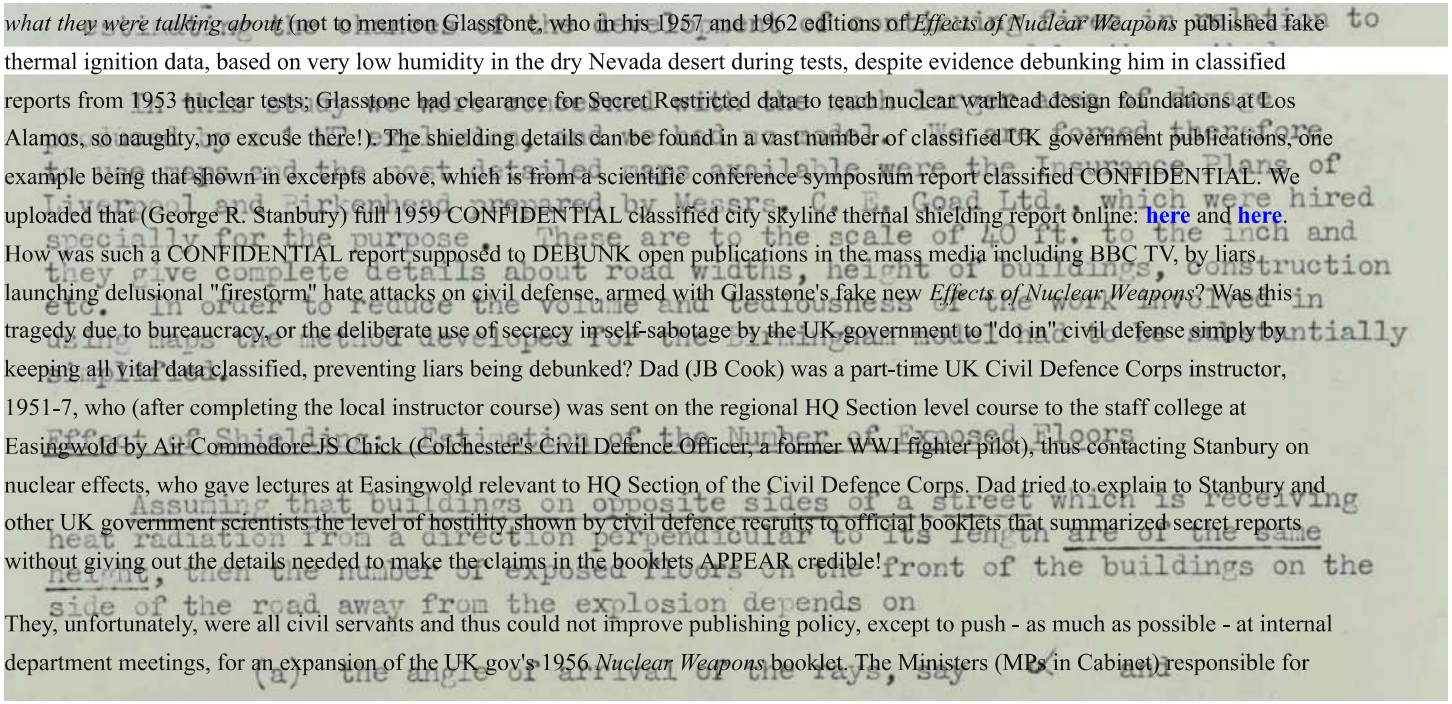
REPORT OF A CONFERENCE OF THE REGIONAL SCIENTIFIC ADVISERS FOR CIVIL DEFENCE, HELD AT THE CIVIL DEFENCE STAFF COLLEGE, SUNNINGDALE PARK, 12th to 14th MAY, 1959.

MR. STANBURY gave a talk on Study Torquemada, dealing with Fire Problems after a Megaton Explosion. He has provided the following summary:-

I. Estimation of initial fire incidence

The method used is based on that described in the Report of the Technical and Tactical Study Courses held at the Fire Service College in May, June and July 1952 entitled "The Fire Situation after an Atomic Attack on a British City" - a copy of which can be made available on application.

The British city concerned in these particular study courses was Birmingham and for this purpose a 1 in 12 scale model was made by the Birmingham Fire Brigade covering a 25° sector of the area likely to be affected by the explosion of a nominal atomic bomb over the centre of the city. With this model the problem of shielding - which is all important in this connection - could be dealt with quite satisfactorily. A lamp was set up at the point of burst in relation to the model, and it could be seen immediately which windows were exposed and which were shielded. After that it was only a question of



what they were talking about (not to mention Glasstone, who in his 1957 and 1962 editions of *Effects of Nuclear Weapons* published fake thermal ignition data, based on very low humidity in the dry Nevada desert during tests, despite evidence debunking him in classified reports from 1953 nuclear tests; Glasstone had clearance for Secret Restricted data to teach nuclear warhead design foundations at Los Alamos, so naughty, no excuse there!). The shielding details can be found in a vast number of classified UK government publications, one example being that shown in excerpts above, which is from a scientific conference symposium report classified CONFIDENTIAL. We uploaded that (George R. Stanbury) full 1959 CONFIDENTIAL classified city skyline thermal shielding report online: **here** and **here**. How was such a CONFIDENTIAL report supposed to DEBUNK open publications in the mass media including BBC TV, by liars launching delusional "firestorm" hate attacks on civil defense, armed with Glasstone's fake new *Effects of Nuclear Weapons*? Was this tragedy due to bureaucracy, or the deliberate use of secrecy in self-sabotage by the UK government to "do in" civil defense simply by keeping all vital data classified, preventing liars being debunked? Dad (JB Cook) was a part-time UK Civil Defence Corps instructor, 1951-7, who (after completing the local instructor course) was sent on the regional HQ Section level course to the staff college at Easingwold by Air Commodore JS Chick (Colchester's Civil Defence Officer, a former WWI fighter pilot), thus contacting Stanbury on nuclear effects, who gave lectures at Easingwold relevant to HQ Section of the Civil Defence Corps. Dad tried to explain to Stanbury and other UK government scientists the level of hostility shown by civil defence recruits to official booklets that summarized secret reports without giving out the details needed to make the claims in the booklets APPEAR credible!

They, unfortunately, were all civil servants and thus could not improve publishing policy, except to push - as much as possible - at internal department meetings, for an expansion of the UK gov's 1956 *Nuclear Weapons* booklet. The Ministers (MPs in Cabinet) responsible for civil defense were generally "pig ignorant" of science, and usually of authoritarian mindset: they wouldn't give away the secrets needed to make civil defense advice credible "in case it helped the Russians" (Russians had their own nuclear test effects and civil defence data, anyhow, judging by their own immense investment in civil defense!). Ministers also generally considered the "lay public" to have the IQ of "dead sheep", with the curiosity and acumen of "lemmings", so Ministers couldn't understand why any technical data needed to be supplied. Instead, they launched adverts *asserting* rather than *proving with nuclear test scientific data* civil defense advice! That was a gift to CND and anti-Western civil defence folk like communists, who claimed it was all money-wasting lying propaganda with no substance behind it! PATHETIC! In the end, when the UK gov decided to reclassify its "Radioactive fallout - provisional scheme of pblic control" (written entirely by Dr John McAulay of the UK Home Office Scientific Advisory Branch - as shown by the draft in the UK National Archives) from unclassified in 1956 when first published by HMSO, to "RESTRICTED" when reprinted in 1957 (!), dad had enough and resigned from the Civil Defence Corps, followed by Air Commodore Chick: "It was absurd and made recruitment of sensible folk impossible!" (Dad and Air Commodore Chick shared an interest in both aircraft and archaeology, and used the Civil Defence Landrover to visit Roman archaeological digs around Colchester, to de-stress from the civil defence situation! In 1957, dad left UK to work in Africa, needing a complete change of environment for health reasons. When he returned, twelve years later in 1969, the Civil Defence Corps was gone by order Harold Wilson obstensibly to "save" a few quid, but essentially 100% due to refusing to refute lying left wing politics and mass media propaganda attacks against its "claims"!)

Note: Stanbury's 1964 DASA report proving firestorms and nuclear winter impossible in modern cities is cited **here** but then pathetically "dismissed" by the fake news or CND style "observation" that firestorms did occur in WWII in wooden areas of Hiroshima no longer representative of modern cities, due to blast overturning now obsolete breakfast stoves!, and we also wish to point the reader to Walmer E.

The conditions necessary for firestorm formation have been the su
speculation and research for decades. Based on an analysis of expecte
starts from hypothesized nuclear detonations over Liverpool and Birmin
along with the conditions which led to the formation of the Hamburg fi
Stanbury [38] concluded "that a nuclear explosion could not possibly p
firestorm." The occurrence of a firestorm at Hiroshima following the
detonation of a relatively small, by today's standards, nuclear device
certainly brings this conclusion into question and the large number o
research reports on firestorms indicates that most researchers feel th
firestorms are possible following such explosions.

GROUPTHINK B.S.!

- William M. Pitts, US Department of Commerce, NIST1R 89-4049, Assessment and Design Requirements of a Wind Tunnel Facility to Study Fire Effects of Inte May 1989, Sponsored by: Defense Nuclear Agency, pages 27-28. Nope. Stanbu planned the German firstorms, and attended UK nuclear tests, and analysed Hi

[38] Stanbury, G. R., "Ignition and Fire Spread in Urban Areas Follow
Nuclear Attack," in Proceedings: Tripartite Technical Cooperatio
Program, Panel N 3, Oct. 5-9, 1964, Dorking, England, pp. 16-1 t
Published by DISA, September, 1965.

TYPING ERROR: PUBLISHER WAS **D**

PITTS MAKES THE USUAL CND TYPE "ERROR" OF IGNORING THE DETAILED EVI

Strope's pathetic discussion of Stanbury's firestorm research in his damning review of Lynn Eden's *Whole World on Fire* propaganda book, linked **here** where Strope notes that the key expert in the UK Home Office Scientific Advisory Branch at Horseferry House, London, during his 1963 visit (Stanbury) had planned the German firestorms (before going to do research at UK nuclear test Operation Hurricane). This accords with dad's understanding. The point is, Walmer E. (aka "Jerry") Strope (**the USNRDL fallout expert who used a huge array of different data - from geiger counters, film badges and even photos of the collapsing cloud plumes - to finally produce an accurate fallout pattern for the 1946 underwater Crossroads Baker nuclear test**, and later spearheaded **President John F. Kennedy's 1960s nuclear weapons effects civil defense research programme at the Pentagon to put Herman Kahn's 1957 fallout shelter basements etc suggestions into place)** misses any mention of Stanbury's key point about thermal shadowing preventing fires! This is a damning indictment of the whole nature of backdoor "secret" research; errors of misunderstanding can never be corrected under such conditions, instead becoming "Chinese whisper" style mythology that ossifies into hardened fake news dogma!



ABOVE: (animated gif) Bravo fireball shielding by clouds; analogy to city skyline shielding of most fireball radiation!



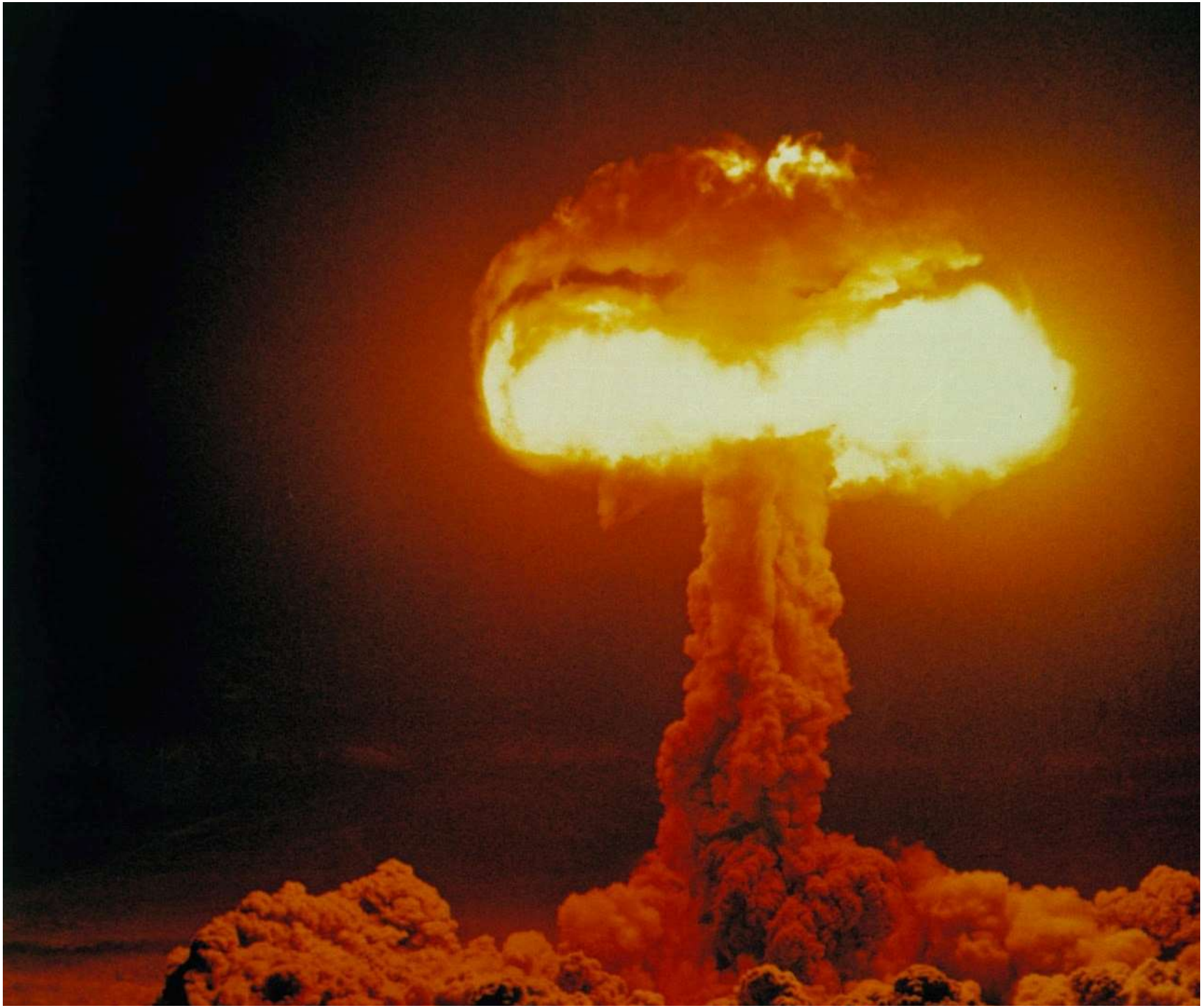


ABOVE: (animated gif) Bravo fireball shielding by clouds; analogy to city skyline shielding of most fireball radiation!



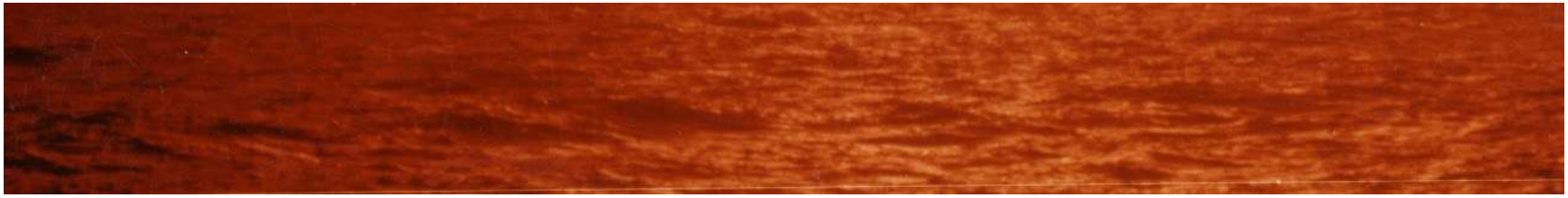


ABOVE: This pic of 74 kt Plumbbob-Hood air burst at 450m altitude by a balloon at Nevada in 1957 (it was the largest air burst in Nevada) shows very clearly exactly how local fallout is averted: soil rises up in the stem, reaching the fireball only after it has evolved into a horizontal torus or "ring doughnut with a hole in the middle", the dirt then passes up through the hole in the middle of the fireball, up at the top, colliding with cold air, before cascading back around the periphery and falling out as NON-RADIOACTIVE fallout in the downdraft around the periphery of the toroidal circulation near the outer edge of the fireball! You still get dust, but it ain't contaminated to any significant extent (maybe a very small amount of neutron induced activity from dust irradiated with neutrons near ground zero, but that's all). This detailed mechanism is key to understanding air burst neutron bomb collateral damage aversion. It must be known by everyone, to debunk liars who fear-monger on radiation fallout hazards.









ABOVE: 22 megaton explosion Bravo seen from USS Estes, note partial obscuration by cloud cover (worse in a city when building skylines block most of the thermal and other radiations, ignored by Glasstone), and the problem of declassified poor quality scans of key documents. There are now FOUR different quality scanned versions of this photo of a half-collapsed warehouse, Tare Island, Bikini Atoll, about 13 nautical miles or 14.75 statute miles from 15 megaton Bravo:

(1) VERY POOR-quality scan of "Secret-RD" classified Castle-Bravo weapon test report WT-901, Fig. 3.24 at p41 of original pagination (not PDF): **https://osti.gov/opennet/servlets/purl/16069697-F8jsfN/16069697.pdf**

(2) POOR-quality (ditto; WT-901, Fig 3.24): **https://apps.dtic.mil/sti/pdfs/AD0356271.pdf**, and best-quality:

(3) OK-quality (ditto; WT-901, Fig 3.24): **https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/AD356271.xhtml**

(4) EXCELLENT quality: **https://catalog.archives.gov/id/146763468**

These three copies of Secret-RD nuclear weapon test report WT-901 on Bravo damage are a useful compendium of ACTUAL H-bomb effects radii for specific structures including concrete buildings, which avert the "let's rely on computer models, not test data because computers are more reliable!"-fake news. The test data remains the same, although the yield of Bravo has recently been revised upwards to 22 megatons by re-analysis of the effect of water spray on the fireball's blast expansion in films of the test, according to Dr Greg Spriggs and others at Lawrence Livermore National Laboratory; please see the paper **LLNL-JRNL-804822 linked here,** and others, plus a recent TV interview of Dr Spriggs on Bravo yield revision to 22 megatons, discussed in detail later on this blog, below). This means that the blast effects reports above give effects data which occurred at the same distance (unless Bikini Atoll has changed size) but due to a HIGHER yield, 22 megatons not the previously believed 15 megatons! So the effects *ARE EVEN LESS IMPRESSIVE IN REALITY THAN PREVIOUSLY BELIEVED!*

Today, most MIRV warheads are well under 1 megaton yield! tactical nuclear weapons of W54 yield size are just 0.02 kilotons, **FULLY ONE MILLION TIMES LESS THAN THE 22 MEGATON YIELD OF BRAVO**! So please, anti-nuclear fanatics, now go and figure the reality of *collateral damage avoidance by tactical nuclear weapons!*

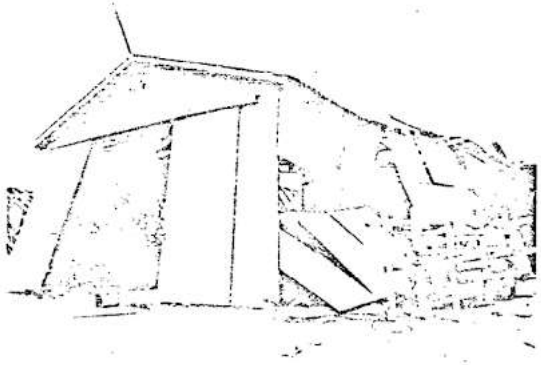


Fig. 3.24 Bin Storage Warehouse Looking Southwest, Tare Island, Postshot, 14-3/4 Miles from GZ

SOURCE:
https://www.osti.gov/opennet/servlets/purl/16069697-F8jsfN/16069697.pdf

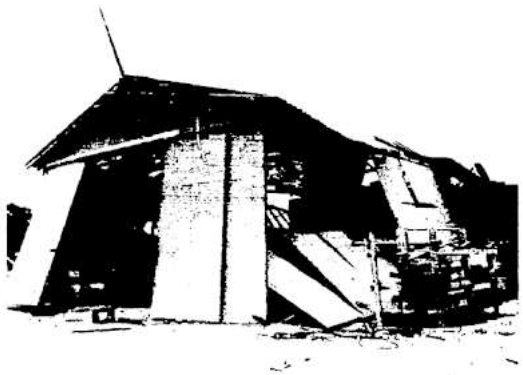


Fig. 3.24 Bin Storage Warehouse Looking Southwest, Tare Island, Postshot, 14-3/4 Miles from GZ

SOURCE:
https://apps.dtic.mil/sti/pdfs/AD0356271.pdf



Fig. 3.24 Bin Storage Warehouse Looking S
Postshot, 14-3/4 Miles from GZ

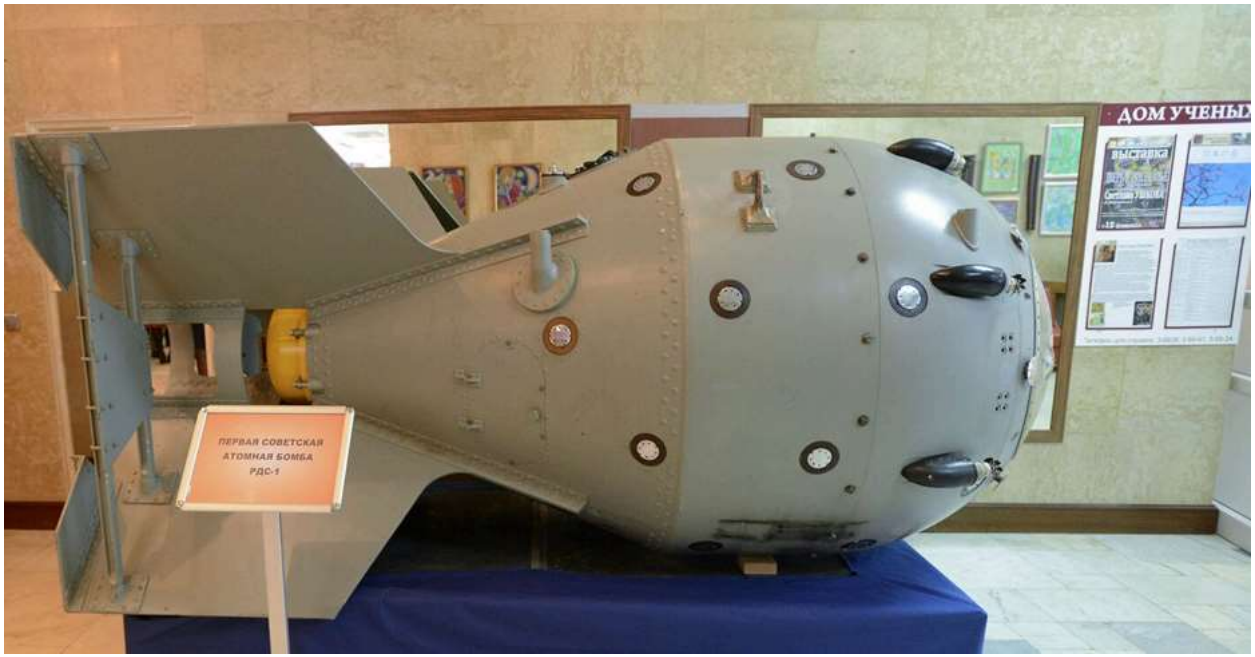
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ORIGINAL PHOTO SOURCE: Bravo Blast Damage to Eneman Island Building, https://catalog.archives.gov/id/146763468





ABOVE: Russian VNIITF nuclear weapons lab propaganda photo of Pugwash including Joseph Rotblat with hand on nuclear weapon in September 1997. Fans of VNIITF nuclear weapons like Joseph Rotblat, happily touching a Russian nuclear weapon and listening with a big smile on his face to Russian neutron bomb Chief Weapons Designer Boris Litvinov, 1929-2010 (far right with big eyebrows) can now find it posted online by the Russian VNIITF nuclear weapons lab at their Russian website, located here: **https://vniitf.ru/article/meropriyatiya** (just in case that link disappears for some reason, like a nuclear bomb going off accidentally at VNIITF which Western "arms control and disarmament" are obsessed about, that site is also backed up at wayback machine here: **https://web.archive.org/web/20250409221150/https://vniitf.ru/article/meropriyatiya**). Note that VNIITF is Russia's 2nd nuclear weapons laboratory, founded in 1955 at Snezhinsk in a deliberate effort to made a competitor for Russia's original Sarov lab, VNIIEF (founded in 1946), akin to America's creation of Lawrence Livermore National Laboratory at Teller's insistence to break down groupthink by creating a real competitor to Los Alamos National Laboratory! **Boris Litvinov wrote a useful basic summary (omitting some details which can now be filled in with other Russian declassified documents) of his work on clean nuclear weapons design aka "neutron bomb" design, which is included in a 2014 VNIITF collection of his works, which we've extracted and placed online here (in Russian so we can't be accused of translation bias)**.

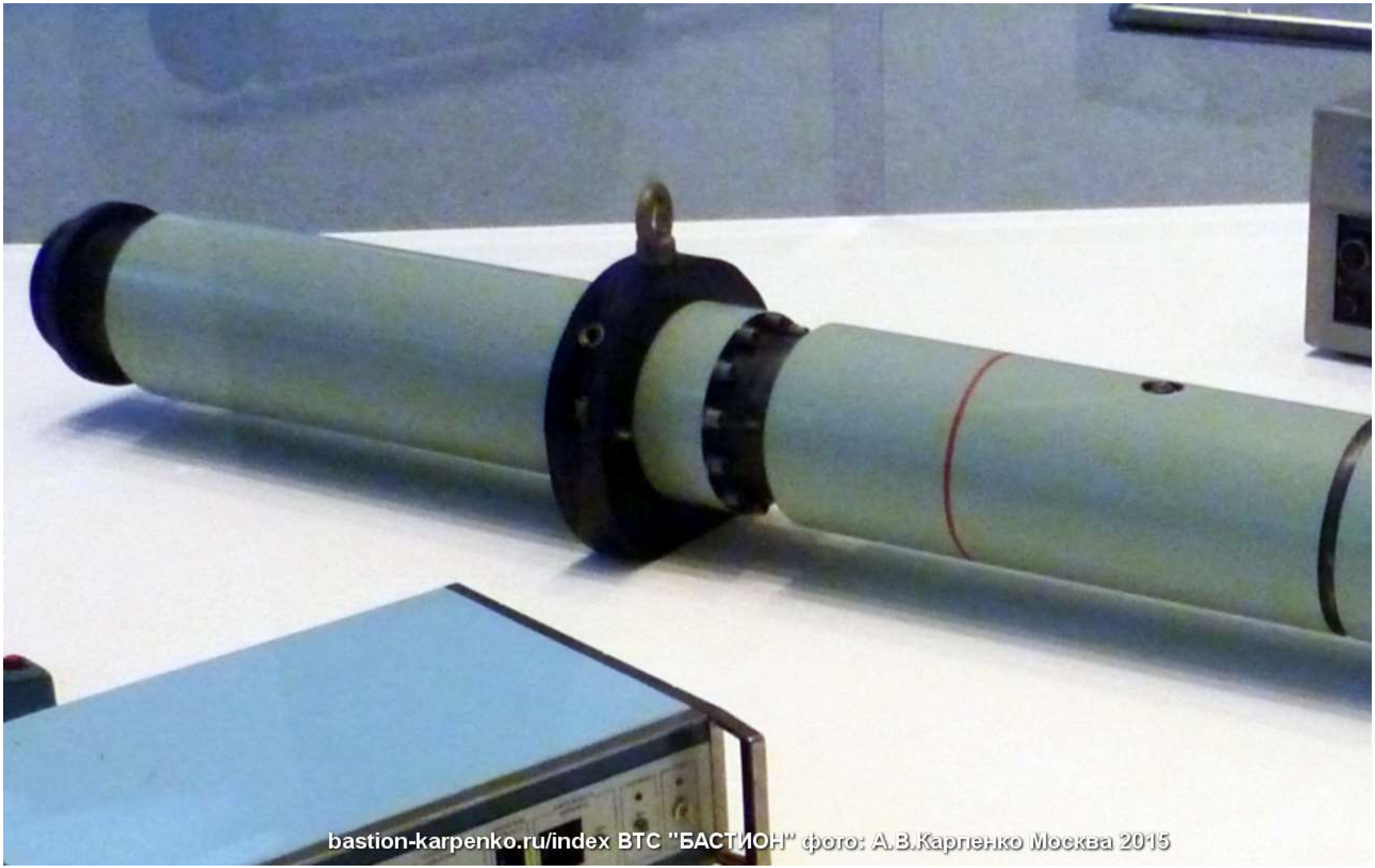


SOURCE: https://vniitf.ru/article/meropriyatiya Backup at: https://web.archive.org/save/https://vniitf.ru/article/meropriyatiya

CAPTION: Пагуошская конференция. С 11 по 13 сентября 1997 г. в Снежинске состоялась IV Международная Пагуошская конференция «Состояние и перспективы ядерных комплексов США и России». В работе конференции приняли участие ученые из России, США, Великобритании, ФРГ, Японии, Франции, Италии, Швеции, Швейцарии и Китая. Конференция проходила два дня и обсуждались проблемы ядерных городов, вопросы международного сотрудничества лабораторий, технологические аспекты разоружения.

TRANSLATION: Pugwash Conference. From September 11 to 13, 1997, the IV International Pugwash Conference "Status and Prospects of the Nuclear Complexes of the USA and Russia" was held in Snezhinsk. Scientists from Russia, the USA, Great Britain, Germany, Japan, France, Italy, Sweden, Switzerland and China took part in the conference. The conference lasted two days and discussed the problems of nuclear cities, issues of international cooperation between laboratories, and technological aspects of disarmament.

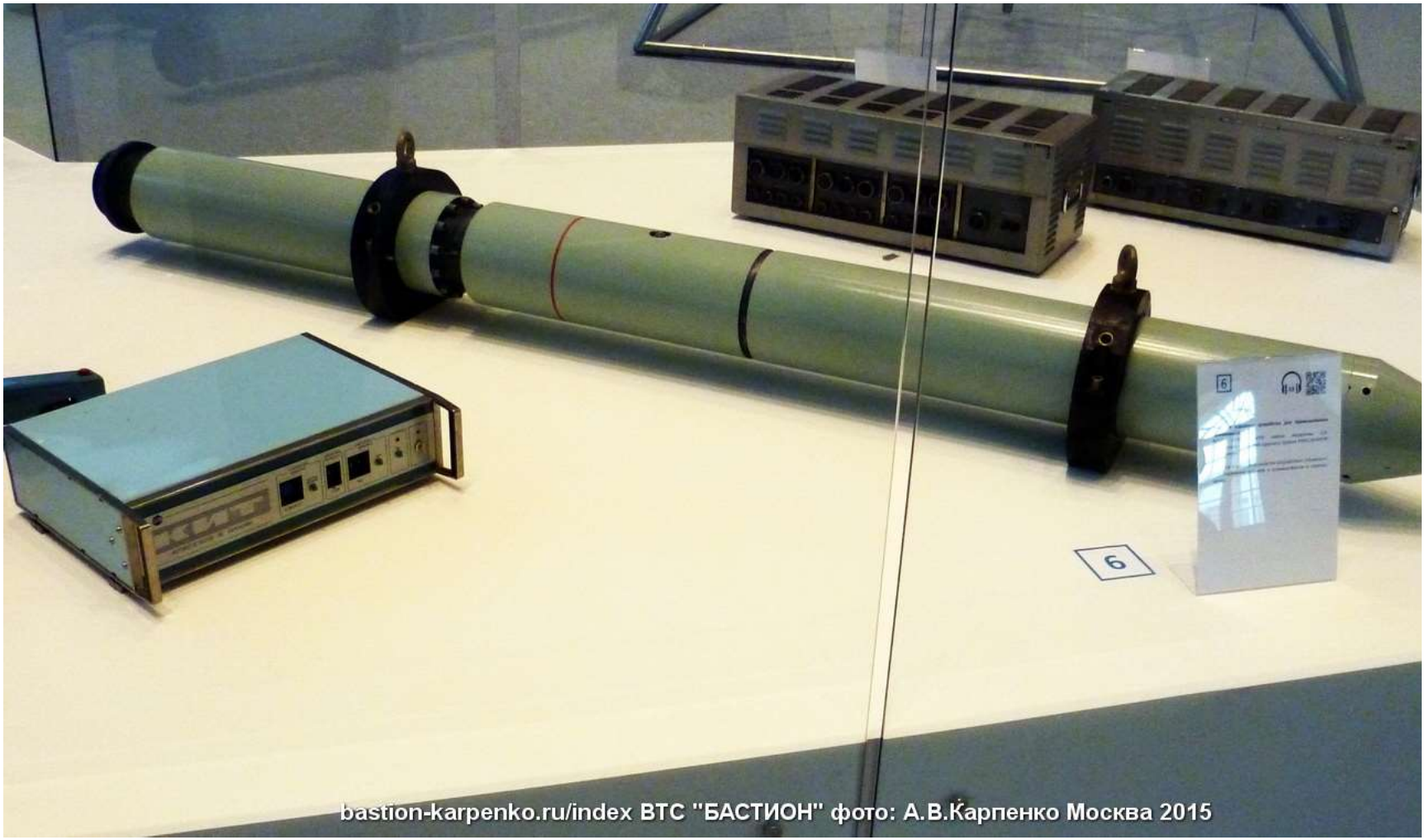

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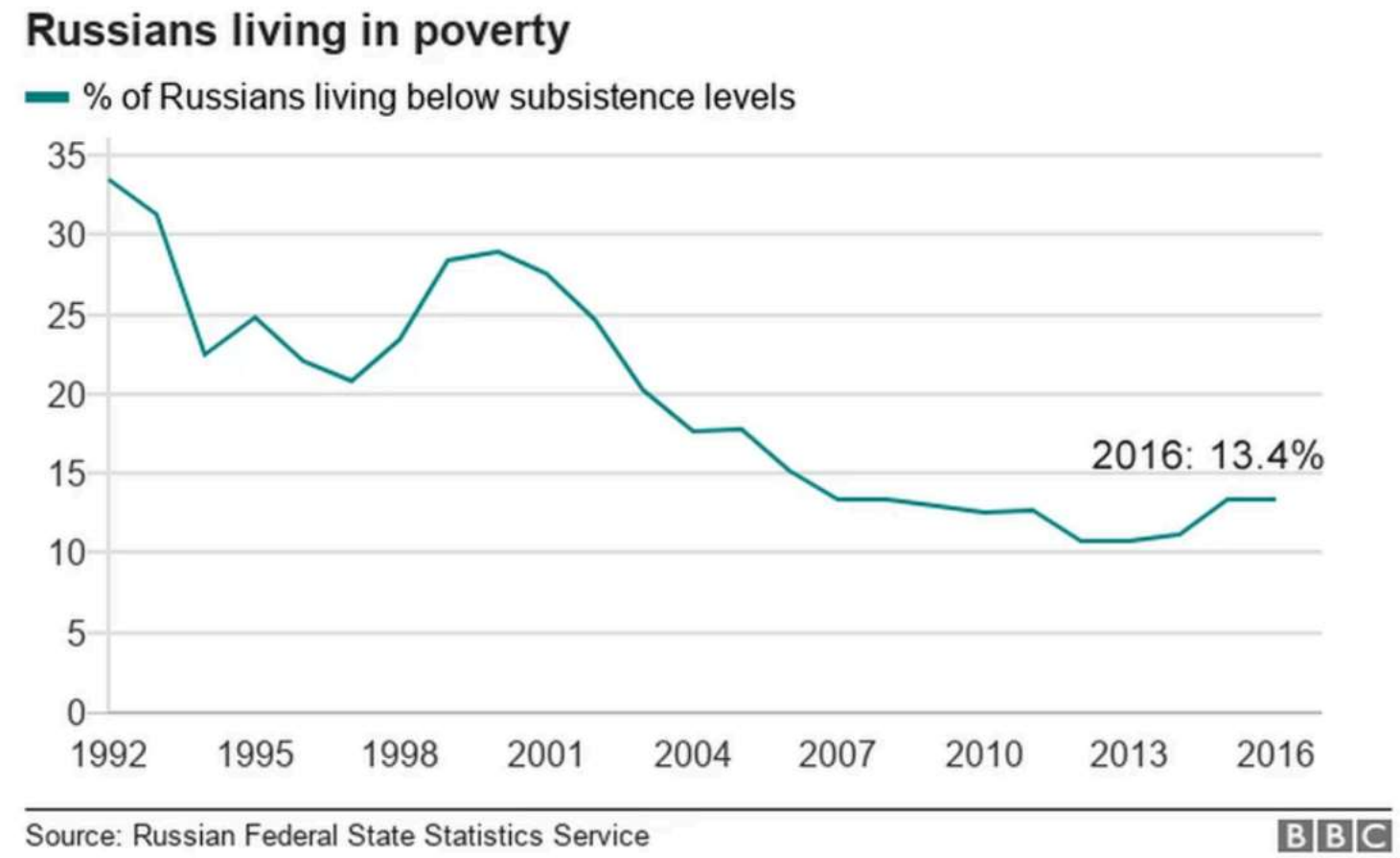

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Ядерное взрывное устройство для промышленных применений. 1968
ФГУП «РФЯЦ-ВНИИТФ имени академика Е.И. Забабахина» — Музей ядерного оружия РФЯЦ-ВНИИТФ г. Снежинск
Ядерное взрывное устройство разработано специально для подземных взрывов в промышленных и научных целях.
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varned Russians not to take the country's power for granted.

ABOVE: Putin in Tu-160 bomber in 2005, and graph of (alleged) declining number of Russians living in "poverty" under Putin's reign; one reason why he remains reasonably popular and there is no huge swell of dissent to overthrow his militaristic regime.



AD A995132

WT-1344 (EX)
EXTRACTED VERSION

OPERATION REDWING

Technical Summary of Military Effects, Programs 1-9

PAGE 6:

The documentation of the fallout distribution by various coordinated projects was successfully accomplished. Evaluation of laboratory data yielded the necessary conversion factors to correct any quantitative errors in the measured patterns. Final data analysis included corrections for background radiation. The combining of the corrected fallout distribution with data from incremental and total samplers and with reduced data from the rocket flights through the mushroom yielded sufficient information for the construction of a detailed model of the initial conditions for fallout-prediction methods.

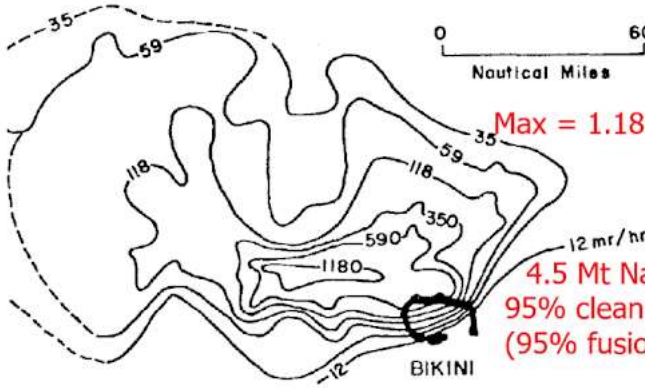
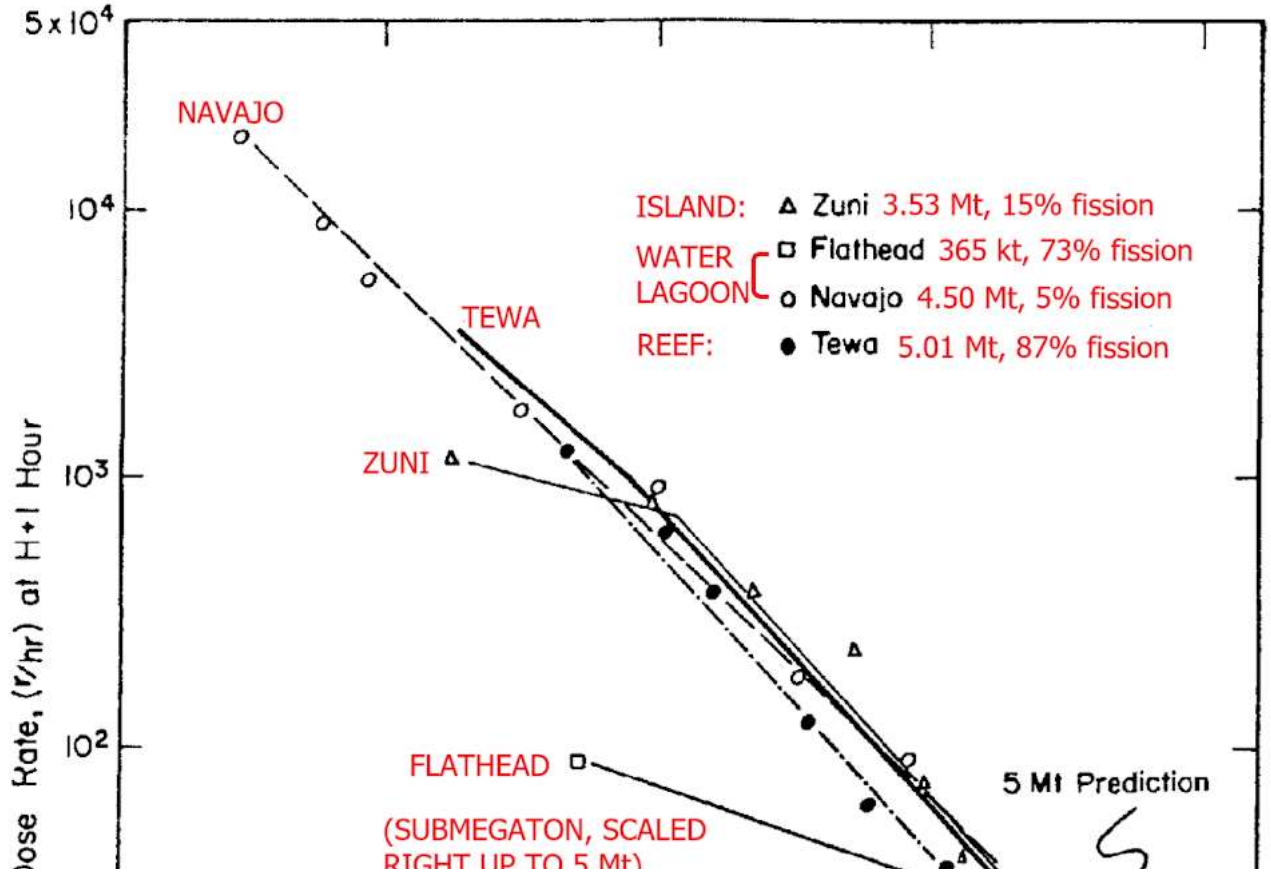


Figure 3.11 H+1 hour contour locations decayed to D+1 at 3 feet above surface, Shot Navajo.

Operation Redwing correlation of fallout pattern radiation versus area for different surface burst conditions:



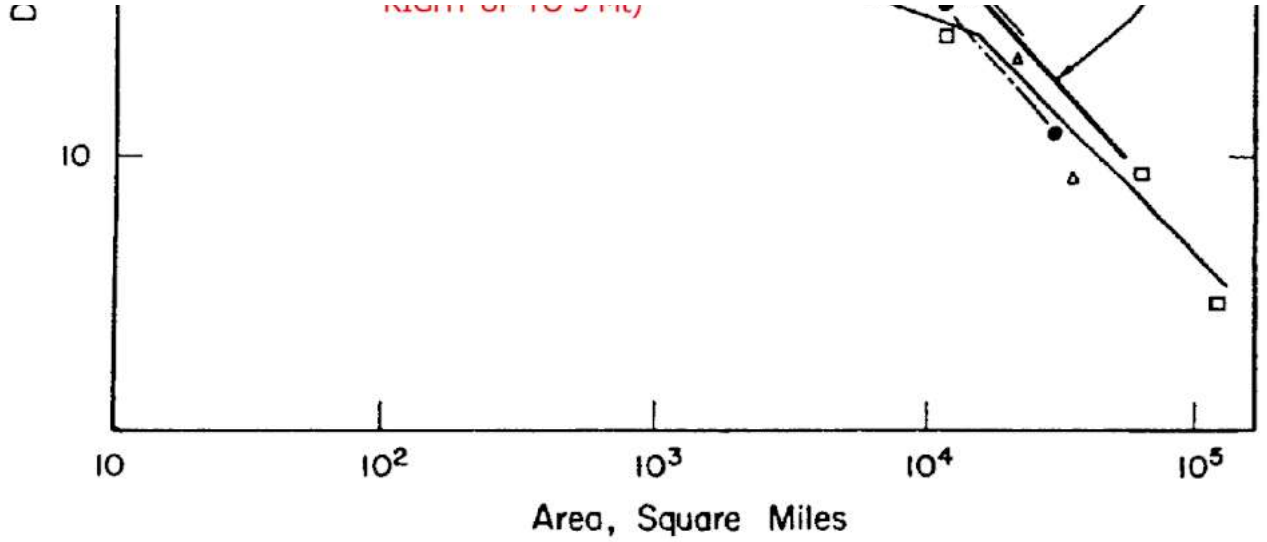


Figure 3.17 Areas of dose rate contours for Redwing shots normalized to 5-Mt 100-percent fission yield.

ABOVE: **extract from nuclear weapon test report WT-1344 summarizing some of the key so-called "controversial" Operation Redwing fallout raw data, ADA995132 in highest available quality (original declassified version was unreadably bad scan of a photocopy of a declassified photocopy). The detailed analysis of fallout in this diagram is not "trivia"; it explains how a *false* analysis of the Na24 content of fallout from water surface bursts (and to a lesser extent land island and reef bursts) of high yield thermonuclear weapons at Bikini Atoll was fouled up and obfuscated by WT-1344. Dr Benson L. Tucker of RAND Corp did a full detailed analysis of neutron activation products (from bomb and the local environment, due to neutron capture) in fallout, starting with the 1952 Ivy-Mike test, and obtained evidence that this effect was not properly accounted for, in the naive assumptions made in the WT-1318 fallout report. The fact is, the land and shallow reef surface bursts (Zuni and Tewa) and water surface bursts (Navajo and Flathead) at Operation Redwing gave similar fallout distributions when the dose rates are normalized to areas covered for a standard total and fission yield, proving that the difference claimed by Glasstone in *The Effects of Nuclear Weapons* is fake news. In reality, we have extensive fallout data for all yields, because water surface bursts do NOT produce substantially different fallout patterns to land surface bursts, contrary to Glasstone. This has immense implications for understanding the fallout hazards. Also, if you go up in an aircraft to 50,000 feet or so and throw the contents of a bag of flour out of the window, you don't expect the "hotspot" concentration to occur at "ground zero" below you. If you are sensible, you'd predict the maximum hotspot to occur DOWNWIND at a distance like vt, where v is wind velocity and t is time taken for the average size of the flour particles to reach the ground. Duh. This explains very well the "mystery" of why there are "hotspots" downwind. Note that this massively DECREASES the danger, because the time taken for the particles to arrive on the ground in the downwind hotspot, allows a lot of DECAY to occur before fallout hits people! Duh! Glasstone's fallout prediction instead shows a maximum fallout at ground zero, fake news! Duh. Case closed!**

Vital analysis of fallout comparison between water and land surface

TABLE 3.2 PERCENT OF FISSION FRAGMENTS [LOCAL, 24 hour FALLOUT %] WT-1344: Redwing effects summary

All numbers in percent.

Shot	Device Down a	Device Down b	Device Down c	Na^{24} d	Na^{24} e	If Collimated, Fall-out Product Down c/d	If Collimated, Fall-out Product Down c/e
Flathead	29	15	60	17	7.8	50	55
Navajo	50	36/59	144/236	64	37	52/85	91/149
Tewa	28	24	96	17	4.5	80	91
Zuni	48	47	188	50	33	94	125

a These estimates of the percent down were obtained in an unusual manner (WT–1319).

b Summation within contours of WT–1318 gives percentages as listed in this column.

c Detector readings of WT–1318 corrected for collimation.

d The contribution of Na^{24} (Reference 3). = ACCURATE DATA!

e Calculations of Project 2.63 as to the contribution of Na^{24}.

c/d WT–1318 collimated readings modified by subtracting sodium contribution of Column d, to give the percent of fission products actually accounted for. = ACCURATE DATA (DR B. L. Tucker)

c/e WT–1318 collimated reading modified by subtracting sodium contribution of Column e, to give the percent of fission products actually accounted for. = FAKE NEWS, UNDERESTIMATES Na24

Unreliable data

Good data (from Tucker's analysis of Na24 in fallout)

CRAP!!

TABLE 3.3 SUMMARY OF AREAL EXTENT (MEASURED LAND EQUIVALENT RA

Island Lagoc

H + 1 hour dose rate r/hr	Area Within C Zuni	Area Within C Flathead
1,000	—	—
500	—	—
300	—	—
100	750	—
50	1,720	—
30	4,000	90
10	7,600	2,100
5	10,800*	7,600
3	>16,500	10,800
1	>28,000	>20,000

IMAGINARY most 1 hour dose rates are fictional!

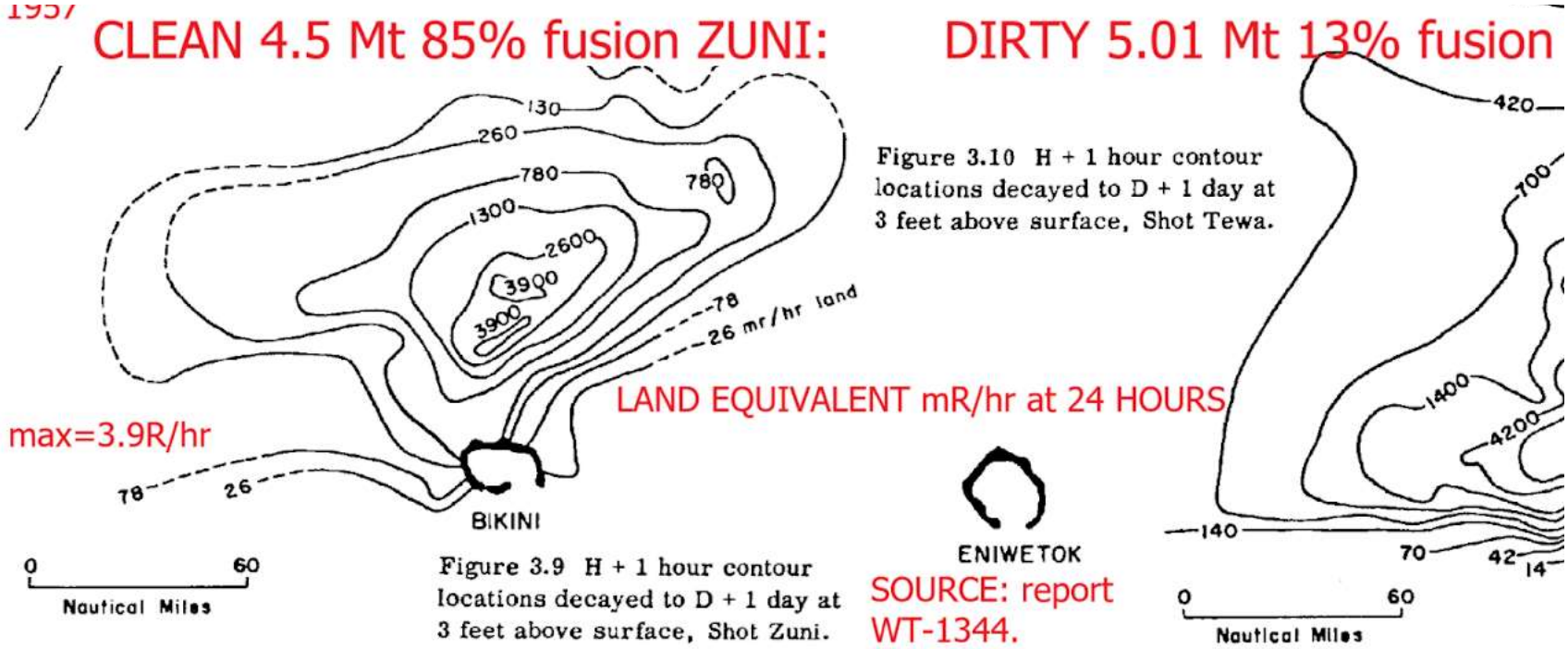
Clean vs.

Two-day accumulated dose roentgens		
1,000	—	— K
500	—	— D
300	—	—
100	1,450	75
50	2,750	425
30	4,300	800
10	7,900	2,700
5	11,400*	5,400
3	>15,700	9,500
1	>26,000	>18,000
Total Yield, Mt	3.53	0.365
Percent Fission Yield (FRACTION)	0.15	0.73

Allows for arrival time!

Source: ADA995132 page 147, Tables 3.2 and 3.3. This is vital data debunking whole basis of Glasstone's fallout analysis in ENW!

Ref 3 (RELIABLE Na24 analysis, unlike WT-1318!): Dr Benson L. Tucker; "Fraction of Redwing Radioactivity in Local Fallout"; AFSWP-1053 (RAND Corp RM-1932), 9 July 1957



ABOVE: **George R Stanbury debunking "nuclear winter" (firestorm soot effect) and mass burns, mass fires, etc, in 1964 in a paper published in the Secret American DASA Tripartite Thermal Effects Symposium in Dorking, UK, October 1964, attended by American big shots like Dr Harold Brode! This was also summarized in the 1974 UK *Nuclear Weapons* (UK Government) book, again ignored by Samuel Glasstone and the US DoD!** On 18 March 2025 in the JFK assassination files release, **President Trump published Secret-classified FBI files on the left wing propaganda of former Ramparts and LA Times journalist Robert Scheer,** author of the lying hate attack on civil defense for credible nuclear deterrence, *With Enough Shovels: Reagan, Bush and Nuclear War* (a hatchet job attempt - that simply ignores all the nuclear testing facts - on Reagan, Bush and TK Jones of Boeing Corp, who debunked ACDA anti-civil defense propaganda). Russian propaganda is still behind continuing wars, killing millions by duping deceitful pseudo-communists in the mass media!

The National Archives
HO 225 /121

HOME OFFICE

CD/SA 121

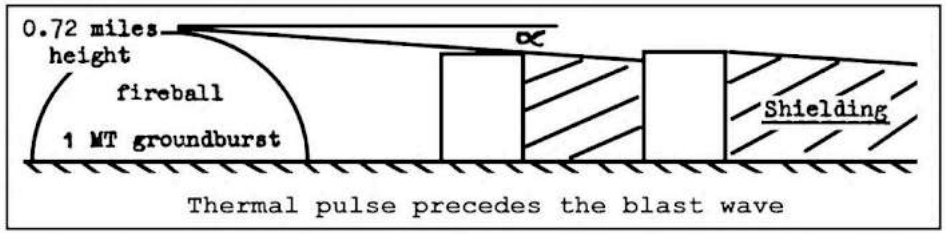
SCIENTIFIC ADVISER'S BRANCH

(Paper at Tripartite Thermal Effects Symposium, Dorking, October 1964)

IGNITION AND FIRE SPREAD IN URBAN AREAS FOLLOWING A NUCLEAR ATTACK

G. R. Stanbury

INITIAL FIRE INCIDENCE



Assuming that buildings on opposite sides
receiving heat radiation from a direction perp
are of the same height we take the average de

Effect of Shielding: Estimation of the num

Distance from explosion miles	Angle of arrival ∝°	Width (units		
		2	3	4
3	13½	.5	.5	1
4	10	.5	.5	.5
5	8	.5	.5	.5

SPREAD OF FIRE

From last war experience of mass fire raids
that the overall spread factor was about 2; i.e
were destroyed by fire as were actually set alig

From last war experience of mass fire raids in Germany it was concluded that the overall spread factor was about 2; i.e. about twice as many buildings were destroyed by fire as were actually set alight by incendiary bombs

Number of fires started per square mile in the fire-storm raid on Hamburg, 27th/28th July, 1943

102 tons H.E.	48 tons, 4 lb. magnesium	40 tons, 30 lb. gel.
100 fires	27,000 bombs	3,000 bombs
	8,000 on buildings	900 on buildings
	1,600 fires	800 fires
	2,500 fires in 6,000 buildings	

However, the important thing to note is that the total number of fires started in each square mile (2,500) was nearly half that of the total number of buildings; in other words, almost every other building was set on fire

When the figure of 1 in 2 for the German fire storms is compared with the figures for initial fire incidence of ~ 1 in 15 to 30 obtained in the Birmingham and Liverpool studies it can only be concluded that a nuclear explosion could not possibly produce a fire storm.

George R Stanbury debunking "nuclear winter" (firestorm soot effect) in 1964 in a paper published in the Secret American DASA Tripartite Thermal Effects Symposium in Dorking, UK, October 1964, attended by American big shots like Dr Harold Brode!

https://archive.org/details/TheEffectsOfTheAtomicBombOnHiroshima/TheEffectsOfTheAtomicBombOnHiroshima/page/n151/mode/1up?view=theater




ПЕРВЫЙ
СОВЕТСКИЙ АТОМНЫЙ
ЗАРЯД
ИСПЫТАН
29 АВГУСТА 1949 ГОДА
НА СЕМИПАЛАТИНСКОМ
YAPLAKAL.COM


34
2


YAPLAKAL.COM













Russian tactical neutron bomb (designed by Boris Litvinov, far right) being fondly patted by Dr Jos

6 April 1982

Daily Mail
TUESDAY, APRIL 6, 1982
17p

Super Casino
Page 30



As Pym goes to F.O. the Premier says: We'll recover those islands

MAGGIE STAKES ALL ON VICTORY

By GORDON GREIG, Political Editor

ON the day Britain's 1982 battle fleet sailed out to sea, Margaret Thatcher staked her shaky Government's survival on getting the Falkland Islands back, whether by diplomacy or force.

She fought to steady the nerves of a Cabinet rocked by the resignations of the Foreign Secretary, Lord Carrington, and two of his Ministers. They took the blame for what Lord Carrington described as the 'humiliating

Demand that shocked Left-Wing

Don't fight



NOP

4 out of 5 want them back

By Political Editor

MRS THATCHER had an overwhelming majority of the country behind her in the Government's attempt to restore the Falkland Islands to British rule.

An NOP survey today shows that 69 per cent. of those questioned believed it to be 'very important' and 14 per cent. 'fairly important' that we regain the Falklands.

More than half said that once we have got them back we should hold on to them.

The poll should also stiffen the military resolve of the Prime Minister and her new Foreign Secretary Francis Pym: Offered a straight choice between using force or relying on diplomatic pressure to regain the Falklands, 53 per cent. favoured force and 46 per cent. diplomacy.

Ominously for the Government, 17 per cent. of the Tory voters questioned say they might switch their support

says Benn

By ROBERT PORTER, Political Correspondent

ANTHONY WEDGWOOD BENN stormed out of a Left-Wing Tribune meeting last night after angry colleagues booed and jeered his claim that Britain should take no military action to free the Falklands.

Amid a noisy debate Mr Benn infuriated other Left Wingers by comparing the Falklands-bound task force with Britain's ill-fated Suez expedition in 1956.

Colleagues denounced the comparison and asked Mr Benn to remember that it was British paratroops who invaded Egypt during the Suez crisis. This time, it was Argentine marines who were invading the peaceful Falkland islanders.

Mr Benn claimed there was nothing Britain could or should do militarily. Any serious attack against Argentina would only de-stabilise relations in South America, he said.

In any event, the Americans would not stand by and see the British cause shock waves through the delicate political and military balance in South America.

Several members of the Shadow Cabinet were at the Tribune gathering before leaving to conduct their own meeting. They joined in the jeers and boos directed at Mr Benn, who sprang to his feet soon afterwards and left.

Some of Mr Benn's supporters claimed he left only to attend another meeting.

● Labour leader Michael Foot last night defended Labour's support of British military intervention. He was heckled but also won thunderous applause at a public meeting at Wandsworth.

Dr David Owen said after a meeting of SDP MPs last night that there would be no 'weakening or wobbling' in their support for the Government's action.

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Asked on television last night whether she would herself resign if the Falklands operation failed, Mrs Thatcher declared in magisterial tones:

"I am not talking about failure. I'm talking about my supreme confidence in the British fleet, superlative ships, excellent equipment the most highly-trained group of men, the most honourable and brave members of Her Majesty's Services . . .

Failure? Do you remember what Queen Victoria once said? 'Failure —the possibilities do not exist'. That is the way we must look at t.

We must use all our professionalism, all our flair and every single bit of native cunning, every single bit of professionalism and all our equipment.

We must go out calmly, quietly, to succeed . . .

We have to recover those islands. We have to recover them, for the people on them are British, of British stock and they still owe allegiance to the Crown and want to be British. We have to do what is necessary to recover those islands."

Mrs Thatcher appointed Francis Pym as Foreign Secretary. She tried to persuade Lord Carrington — 'a sturdy and bonny fighter for Britain'—to stay,

Turn to Page Nine



Out: Carrington yesterday

away from their party if Britain failed to end the Argentinian occupation.

Worsened

A total of 80 per cent. blame Mrs Thatcher's administration for what happened: 58 per cent. said it was 'a lot' to blame and 22 per cent. 'a little'.

And 50 per cent. reckon that as a result, Britain's standing in the world is worse.

As for personal culpability, it looks as though Lord Carrington has correctly judged the public mood by resigning. There were 41 per cent. who thought he was most to blame for the fiasco.

But 39 per cent. also blamed Defence Minister John Nott and 36 per cent. Mrs Thatcher. And to another question 45 per cent. thought that Lord Carrington and Mr Nott should both have resigned or been sacked.

Only 36 per cent. thought Britain should negotiate a peaceful transfer of the Falklands to Argentina at some future date — and 56 per cent. wanted them to be held indefinitely once we get them back.

● NOP interviewed a representative quota sample of 942 people in 47 constituencies across Britain on April 5, 1982.

INSIDE: Mail Diary 19, TV Guide 22, Femail 25, Prize Crossword 30, City 32, 33, Classified Adverts 32, 34, Letters, Stars & Strips 35, Sport 36-40

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INSIDE · Mail Diary 19 TV Guide 22 Femail 25 Priz



Daily Mail 6 April 1982, p2

We all thought we would be killed in half an hour, says

Bravery of Marines outnumbered 10 to 1

By HARVEY ELLIOTT and JOHN DICKIE

THE full extent of the heroism of 79 Royal Marines as they battled, outnumbered by more than 10 to one, for well over three hours in the battle of the Falkland Islands was revealed by the Governor yesterday.

In a graphic account Mr Rex Hunt said that the Marines fired 6,450 rounds of rifle ammunition, four 84 millimetre rockets, and two white phosphorus grenades against the invaders.

Without losing a man, without even a scratch they believe they killed five Argentines, wounded 17 and probably killed a further ten soldiers trapped inside an armoured personnel carrier hit by anti-tank weapons.

Swarmed

But in the end sheer weight of numbers and a shortage of ammunition proved too much and they were forced to lay down their weapons on the orders of the Governor, who feared civilian casualties.

Mr Hunt was speaking after he and the 79 Marines were flown back to England. Their VC-10 was met at RAF Brize Norton in Oxfordshire by Foreign Minister Richard Luce—who later resigned—and the Commandant General of the Royal Marines, Lieutenant General Sir Stewart Pringle, still on crutches as a result of his car bomb injuries.

Also on the plane were Mr Hunt's wife Mavis, and 17-year-old son Anthony. They were greeted by the Hunts' 20-year-old daughter Diana, who wept with her mother.

The 113 passengers included three Falklands girls who have married Marines on duty there, embassy staff from Buenos Aires and their families

Mr Hunt has flown to London with the two Marine maors in charge of the operation. One of them, Major Mike Norman, said he believed he was going to die within half an hour when the Argentinians swarmed ashore.

'When bullets are being fired at you it is of course frightening,' he said. 'But we all came to terms with the fact that within the next half hour we were going to die. Once you have come to terms with that you just get on with your job.'

The Governor said they had been surprised by the invasion route. The Argentine troops had landed at a different beach from the one which had been defended and were able to bring ashore their amphibious vehicles without opposition.

But as they roared along the road a section of Royal Marines opened up with an anti-tank gun. One rocket slammed into the tracks of one of the trucks and another into the passenger area, said Mr Hunt.

The Marines waited to pick off any survivors, but no one got out. So it is possible that the ten men inside were killed.

The Marines had by now run out of supplies of anti-tank rockets and were ordered to pull back to Government House.

As they did so Argentine soldiers were surrounding the area and, from high vantage points, shooting down on to the defenders. The Marines fired back, killing two of the attackers and leaving three injured goaning outside the wall of Government House less than 20 yards away. Temporarily, at least, the invaders were thrown back.

Then a search of the maids' quarters, led by Major Gary Noott, discovered three Argentines hiding inside the buliding. They immediately surrendered and were made prisoners of war.

But the one-sided battle was inevitably going to be lost. Heavy armoured vehicles were rapidly approaching and Mr Hunt, rather than have Government House blown apart, possibly killing everyone inside, decided to negotiate.

Later an Argentine admiral arrived at Government House. 'He was very courteous and polite,' said Mr Hunt. He tried to shake my hand but I said I would not shake hands with someone who was invading British territory. He said it was not British territory.

'He said they had overwhelmingly superior forces and he did not wish to inflict civilian or military casualties.

'I said I had no alternative but to agree. We handed back the three prisoners

Table I-4
Partial Cost of Soviet Civil Defense, 1984

	Billion 1970 Rubles	Billion 1984 Dollars
Total	**0.47**	**4.53**
Manpower—military and civilian	0.20	3.51
Military units		
Operation	0.10	0.31
Construction and maintenance	0.01	0.07
Annual blast shelter construction	0.16	0.65

16. The extensive and largely
Moscow subway for civil defense
probably encouraged the Soviets
ways into planning for the postw
tages of depth and secrecy inhe
struction techniques proved to be
plans for leadership protection.

17. Protective facilities connec
are of two basic types: regular
which are very deep multilevel str
ship and communications eleme
facilities off the public subway li
used for essential workers, wartim

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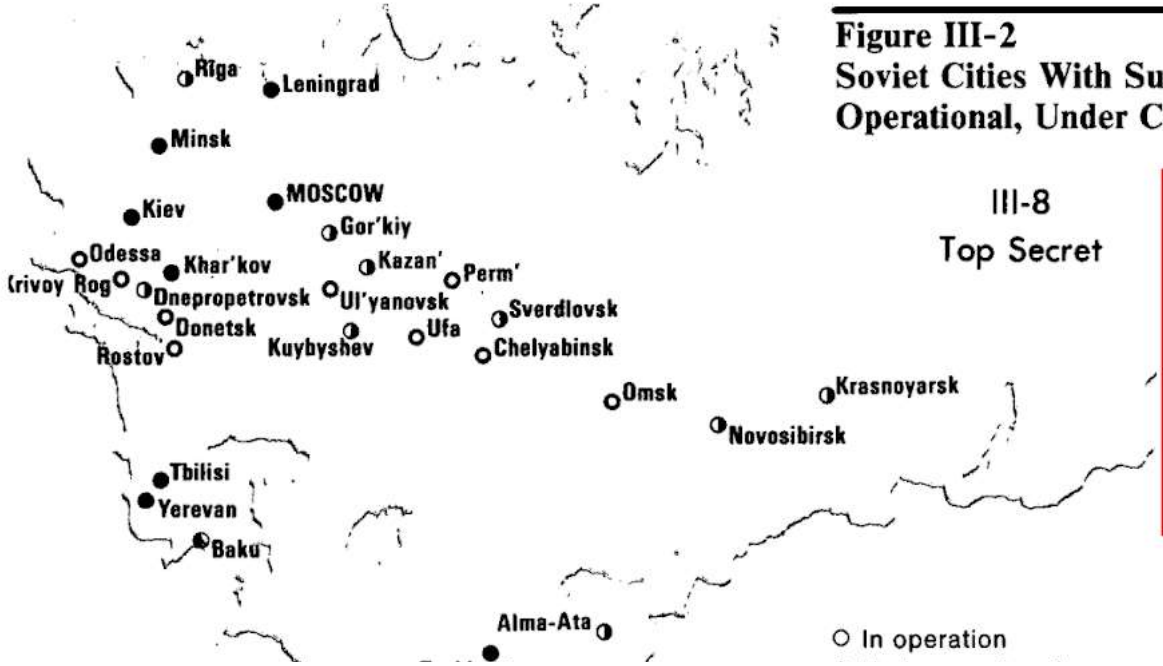


Figure III-2
Soviet Cities With Subway Systems Operational, Under Construction, or Planned

shelter space. The deepest coul
pressure as high as 38,000 kilopa
1-megaton weapon. There are
possibly dedicated subway lines
facilities. Reporting indicates t
tures of both the public and
tested regularly

43. Since 1981, our estimate
to evacuate has ranged from a



~~Top Secret~~

NI IIM 86-10004JX

February 1986

Copy 418

maximum of 420 because of cor
our methodology and improve
number of cities evacuating. We
many as 331 cities might be evac

Declassified in Part - Sanitized Copy Approved for Release 2013/02/08 : CIA-RDP90R00038R000200160001-6

From: CIA, Interagency Intelligence Memorandum, ***Soviet Civil Defense: Objectives, Pace and Effectiveness,*** Top Secret classified, Februa

DAILY MAIL 6 APRIL 1982 PAGE 1 (FRONT PAGE):

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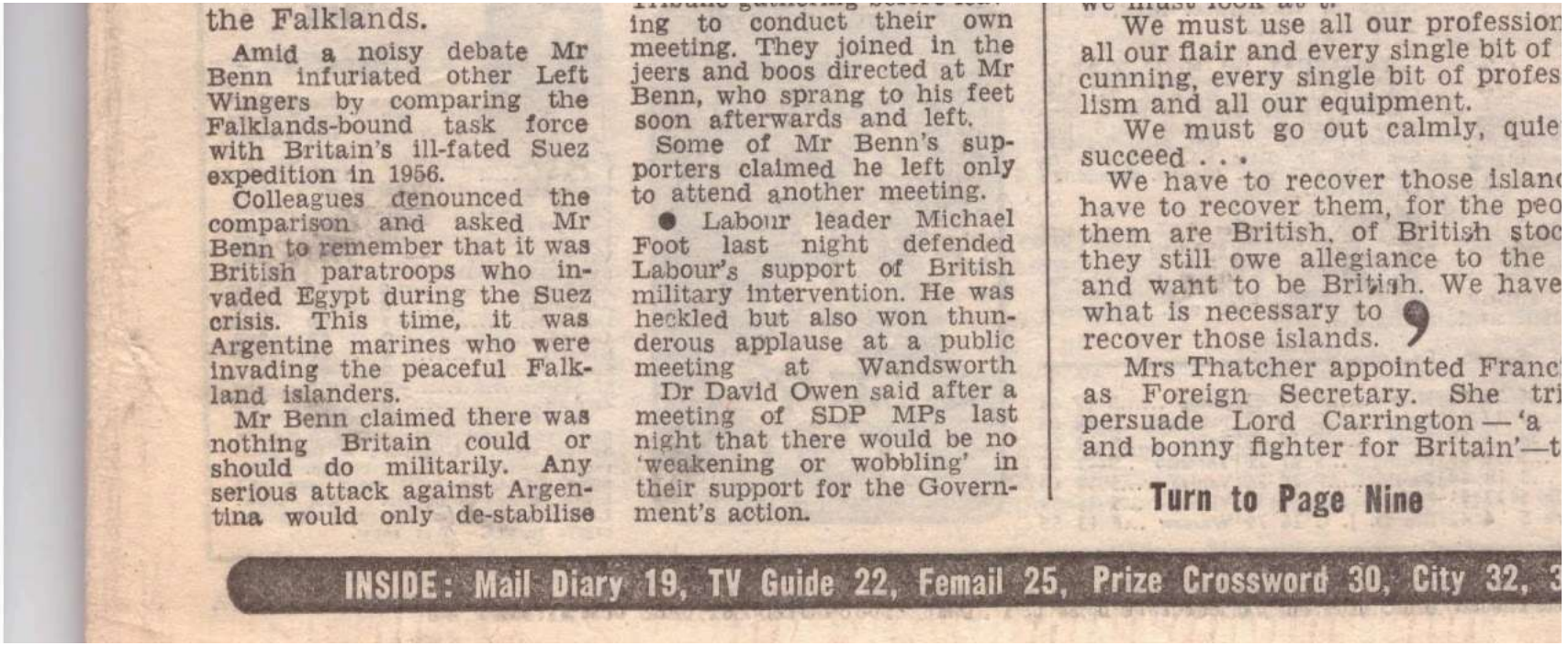
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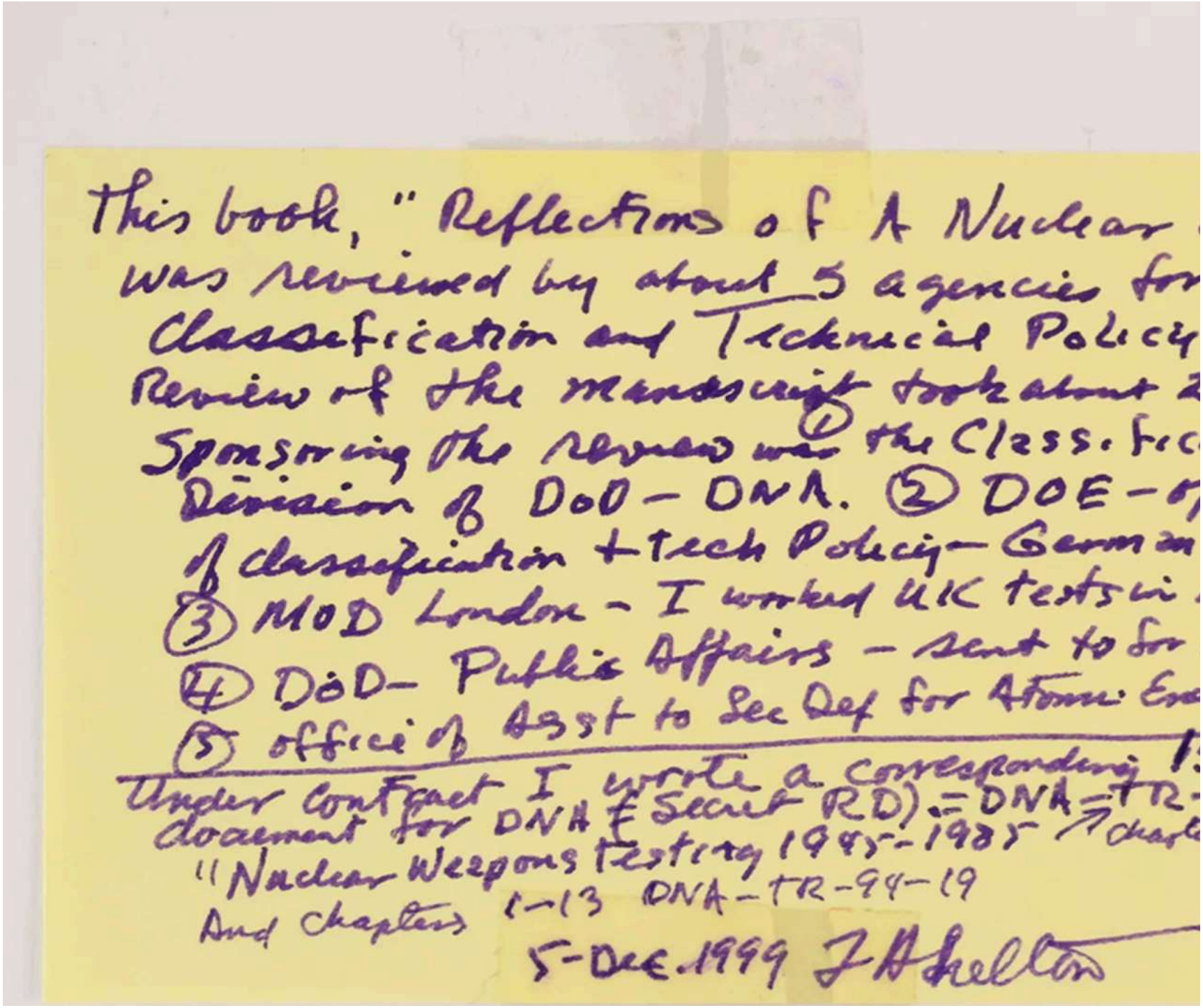
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Turn to Page Nine

INSIDE: Mail Diary 19, TV Guide 22, Femail 25, Prize Crossword 30, City 32, 3

ABOVE: The insanity of "born secrecy" fact censorship, as revealed by Dr Frank H. Shelton concerning his long slog to get his book ***Reflections of a Nuclear Weaponeer*** past the censors! No wonder the public and mass-media are deceived over the capabilities of nuclear deterrence!



this book, "Reflections of A Nuclear
was reviewed by about 5 agencies for
Classification and Technical Policy
Review of the manuscript took about 2
Sponsoring the review was ① the Class. fic
Division of DoD - DNA. ② DOE - o
& classification + tech Policy - Germa
③ MOD London - I worked UK tests in
④ DoD - Public Affairs - sent to for
⑤ office of Asst to Sec Def for Atomic En

Under contract I wrote a corresponding
document for DNA (Secret RD) = DNA-TR-
"Nuclear Weapons Testing 1945-1985" Chapt
And Chapters 1-13 DNA-TR-94-19

5-Dec. 1999 J Shelton



Daily Mail
TUESDAY, JUNE 8, 1982
17p

EXCLUSIVE
McENROE'S STORY
SEE PAGES 28 29

General makes urgent radio appeal to Argentine C-in-C

SURRENDER —OR ELSE

By HARVEY ELLIOTT, Defence Correspondent

THE BRITISH commander in charge of operations to take Port Stanley called up his opposite number on the radio yesterday and pleaded with him to surrender.

Major-General Jeremy Moore made his 11th-hour appeal to Brigadier General Benjamin Menendez at his headquarters in the beleaguered Falklands capital by breaking into an Argentine VHF wavelength.

This was accomplished by a team who speak Spanish and have studied the Argentine communications network. They cracked the wavelength and codes used by the enemy and are now using them to let the Argentines know the hopelessness of their position.

The General made his person-to-person plea through a Marine captain who speaks Spanish.

General Moore, who has twice won the Military Cross, is a deeply religious man and carries a Bible in his combat jacket, reading a page every day.

He has told his unit commanders that if they have to go in for a final assault they must go in fast—and hard.

But he is also determined to avoid loss of life on both sides if at all possible.

The superiority of the British forces is such that General Moore believes the Argentines should be given the chance of surrendering before hundreds of their young conscripts — and perhaps British troops — are slaughtered.

Last bullet

No information was available about the reply given by Brigadier Menendez, but he is regarded as a hardliner, and has already proclaimed that his garrison would fight "to the last man and the last bullet."

News of the surrender offer came last night as Whitehall sources disclosed that Marine and Gurkha patrols have killed 12 Argentines a day for the last five days during a series of fights in the marshy no-man's land between enemy bunkers around Stanley and the British positions overlooking the capital.

British patrols are now pushing so close that they are 'eyeball to eyeball' with the main Argentine defences, according to the sources.

Virtually all the troops under General Moore's command are now in position for the battle to regain Port Stanley and last night Michael Nicholson, ITN reporter with the Task Force, said that Marine Commandos have outflanked the Argentines north of

Turn to Page 2, Col. 1

Welcome, Mr President!



Royal welcome at Windsor for President and Mrs Reagan—Turn to Page 3

INSIDE: Femail 12, Diary 17, TV Guide 20-21, Classified Ads 22, 26-27, Letters, Stars & Strips 24, City 26-27, Casino & Prize Crossword 33

Daily M
WEDNESDAY, APRIL 14, 1982

Haig flies out with a cl
from the Prime Ministe

MAGGIE
THEM O

By JOHN DICKIE, Diplomatic Correspondent

PEACEMAKER Alexander Haig left London last night to report to President Reagan that the deadlock over the Falklands had hardened — and 'dangerously so'.

Although the American Secretary of State's mediation mission seemed in tatters he is refusing to abandon his role as honest broker. But clearly the prospects of a solution to the crisis are now much dimmer.

Mrs Thatcher told Mr Haig yesterday that the latest Argentine proposals were totally unacceptable.

She left Mr Haig with one salient message for President Reagan. This is a crisis in which only one can survive—it's either Galtieri's junta or us. WE will survive.

Echoing the 'It's Them or Us' theme was the clear signal that the Prime Minister believes it is now America's time to choose, that President Reagan has to come down on one side or the other in the negotiations.

Force

In a 100-minute Downing Street meeting Mrs Thatcher left it out beyond any possibility of misunderstanding that she and her Government were running out of patience with the White House chorus : 'We are equal friends with both sides.'

Her view was reinforced in Washington last night by Senator Daniel Moynihan who said the U.S. should stand by Britain and 'make it clear there is absolutely nothing to mediate between a country using force without provocation and a country resisting that force.'

There was increasing bewilderment in Downing Street yesterday

From ANGUS MACPHERSON in Washington

RUSSIA is supplying Argentina with intelligence on the progress of the British task force, according to U.S. officials.

The data is coming from Soviet satellites and the interception of British radio communications.

U.S. intelligence sources say there are about five Russian warships now in the South Atlantic. It is believed that some of them will shadow the British fleet when it passes Ascension Island.

The U.S. is keeping watch with its own satellites and occasional flights by the SR-71 'Blackbird' spy plane over the area.

mination'. On his return to London following ten hours with Argentina's President Galtieri and his junta, Mr Haig claimed he had 'some specific ideas' and hoped to find common ground acceptable to both sides.

Then after another 11 hours with Mrs Thatcher Mr Haig was hooked over by new demands received by telephone from Argentina's Foreign Minister Costa Mendez.



8 June 1982 military "peaceful diplomacy" 14 April 1982 American dip

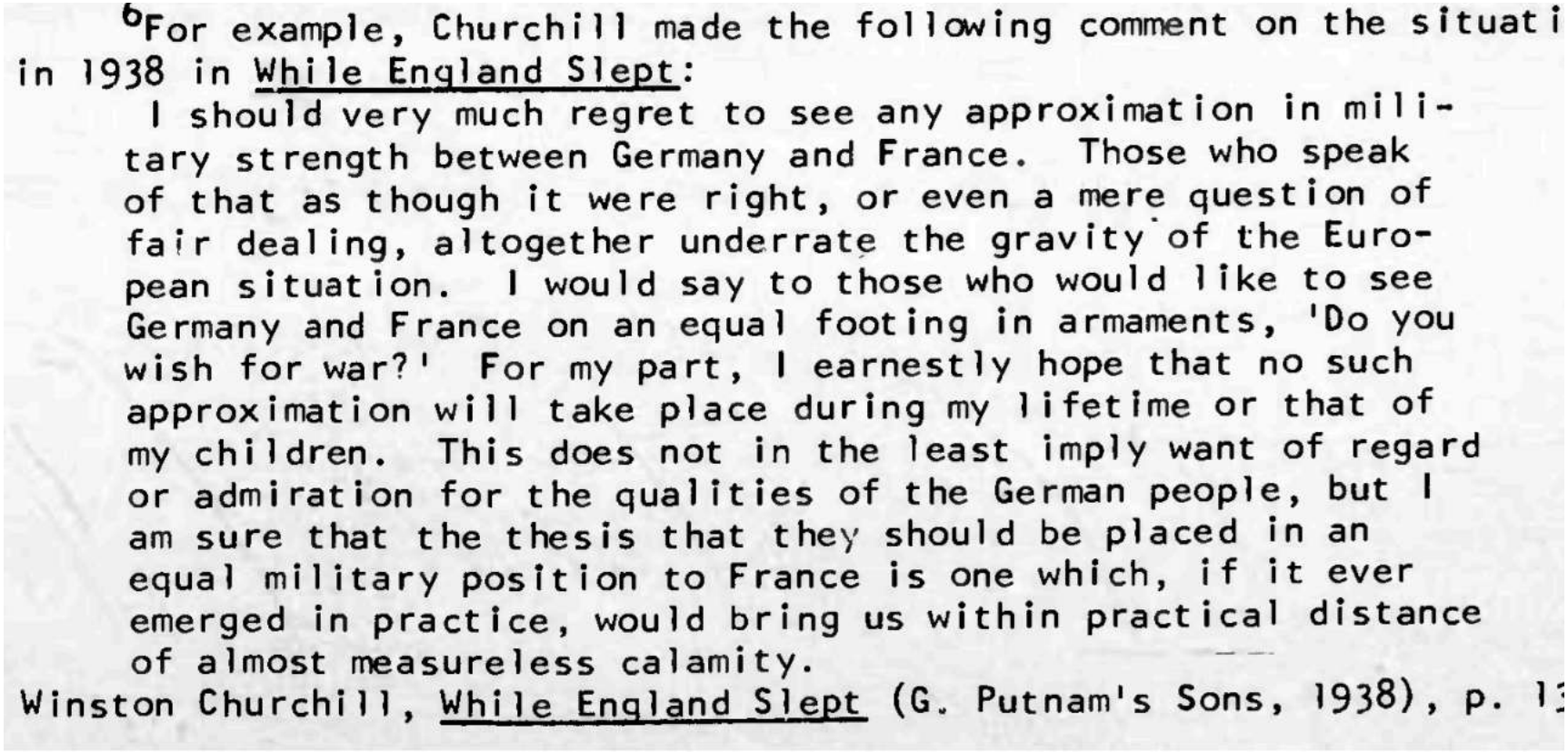
Real evolution of tactical nuclear weapons limited nuclear war strategy (debunking Sir Lawrence Freedman's and CND's attempts to marginalise limited wa

1. 1945-54: Atomic Retaliation--plus the overwhelming dominance of the American mobilization base.

2. 1954-62: Massive Retaliation--increasingly supported by the possible employment of tactical nuclear weapons.

3. 1962- : Flexible Response--sophisticated U.S. targeting strategy designed to limit damage and reduce risk of city exchanges--reinforced by conventional and tactical nuclear capabilities in Europe.

SOURCE: James R. Schlesinger, RAND Corp paper P3574, *European Security and th Nuclear Threat Since 1945*, page 9.

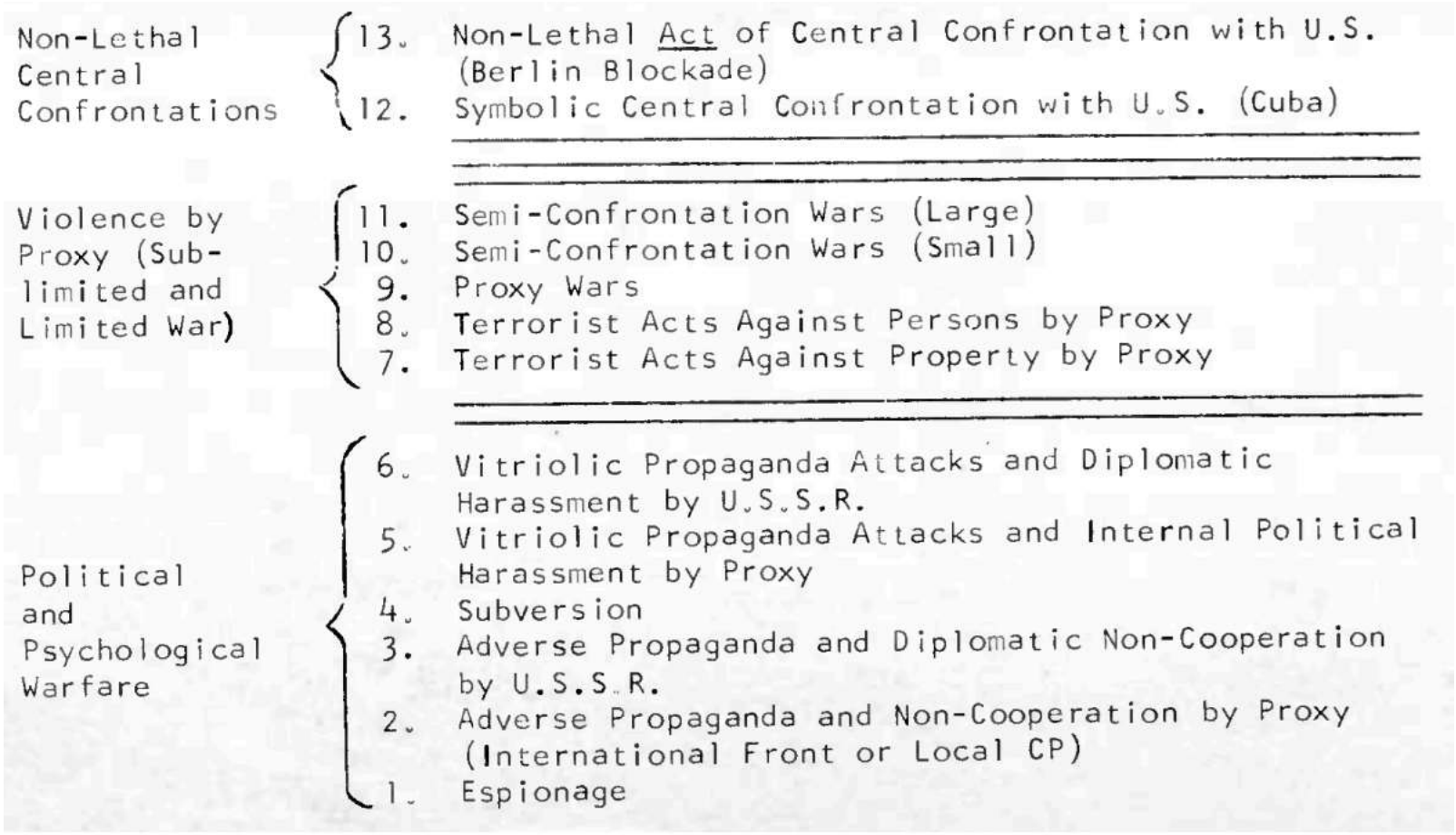


[6]For example, Churchill made the following comment on the situati in 1938 in While England Slept:

> I should very much regret to see any approximation in military strength between Germany and France. Those who speak of that as though it were right, or even a mere question of fair dealing, altogether underrate the gravity of the European situation. I would say to those who would like to see Germany and France on an equal footing in armaments, 'Do you wish for war?' For my part, I earnestly hope that no such approximation will take place during my lifetime or that of my children. This does not in the least imply want of regard or admiration for the qualities of the German people, but I am sure that the thesis that they should be placed in an equal military position to France is one which, if it ever emerged in practice, would bring us within practical distance of almost measureless calamity.

Winston Churchill, While England Slept (G. Putnam's Sons, 1938), p. 1

The problem of "parity": Herman Kahn quoting Churchill's dismissal of parity as a solution in 1938, on page 373 of 22 November 1963 Hudson Institute report HI-202-FR, "A Paradigm for the 1965-1975 Strategic Debate", AD436770



Russian Cold War escalation ladder: Herman Kahn, "A Paradigm for the 1965-1975 Strategic Debate", Hudson Instite report HI-202-FR, page 154, AD0436770.

The most important fact is that it is impossible for either side to attain a high-confidence first-strike capability.

POSSIBILITY OF LIMITED ATTACK AND CIVILIAN CASUALTIES

Senator SYMINGTON. On page 56, you talk about a "response to a limited attack on military targets that caused relatively few civilian casualties."

Do you really believe that such an attack against the United States is possible, and just what do you mean in numbers by relatively few civilian casualties?

Secretary SCHLESINGER. I think that hundreds of thousands of casualties, as opposed to tens and hundreds of millions, must be regarded as relatively few in number. But I am talking here about casualties of 15,000, 20,000, 25,000—a horrendous event, as we all recognize, but one far better than the alternative.

EFFECT OF PUBLIC STATEMENTS REGARDING CIVILIAN CASUALTIES

Senator SYMINGTON. Could not public statements by the U.S. civilian leaders like yourself that "military attacks on military targets would cause relatively few civilian casualties," actually decrease the deterrent value of our nuclear forces?

Secretary SCHLESINGER. No, sir, I do not believe so. The reason I do not believe so is that the United States would retain all of the capabilities embodied in the assured destruction notion.

capabilities embodied in the assured destruction notion.

The point is that we would hopefully restrain the use of those capabilities during this hypothetical wartime period so that our potential opponent would continue to have reason to desist from attack on the urban industrial base of the United States.

SOURCE: Pages 19-20 of "US-USSR Strategic Policies", Hearings of the Subcommittee on arms control etc., Committee on Foreign Relations, 93rd Congress, 2nd session on US and Soviet Strategic Doctrine and Military Policies, March 4, 1974.

DR. HIRAMOTO:

Mr. Hirohata, I hear you had severe radiation symptoms then. Will you tell us what happened?

MR. HIROHATA:

I was working in the telephone office 700 meters to the east of the hypocenter when the blast occurred. Of the 400 employees working in the telephone office then, approximately 250 died because of the nearness to the hypocenter. Fortunately my room was concrete-walled on the side facing the blast. Therefore, I suffered no burns except several injuries on the chest and face. I regarded my escape from death as an indication that I had been entrusted with some mission and worked hard in the reconstruction. However, I developed a headache and a sensation of tiredness in the afternoon, although I felt nothing unusual in the morning. I kept on working every day, always prepared for death. About twenty days afterwards, all the employees were told to visit the Communications Hospital for blood tests. I went at once for an examination and after the test, Dr. Hanaoka told me that I would die unless I kept absolute rest because my leucocyte count was lowered to 1,500. Astonished by this information, I returned home and confined myself to bed. A few days later I developed fever and severe diarrhea, epilation of the head, and petechiae on the body. I suffered very much for the following two weeks, but thanks to the kind attention of the doctors at the Communications Hospital and the local practitioner, I was able to recover my health in about two months' time.

- US Atomic Energy Commission report NP-4562, Symposium of exposed survivors held in Hiroshima on March 28, 1952, p4. Mr Hirohata was Head of the General Affairs Section, Hiroshima Telephone Office.

ABOVE: U.S. Atomic Energy Commission data key secrecy, and limited distribution of data from Hiroshima and Nagasaki, not to mention nuclear test data, played in the hands of Russian propaganda fronts in the West, which were able to exaggerate effects to generate

[redacted]

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UNITED STATES ATOMIC ENERGY COMMISSION

BIBLIOGRAPHY OF A-BOMB MATERIAL

Supplement - April 18, 1952 through June 30, 1952
Addendum I

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By
Annabelle W. Furman

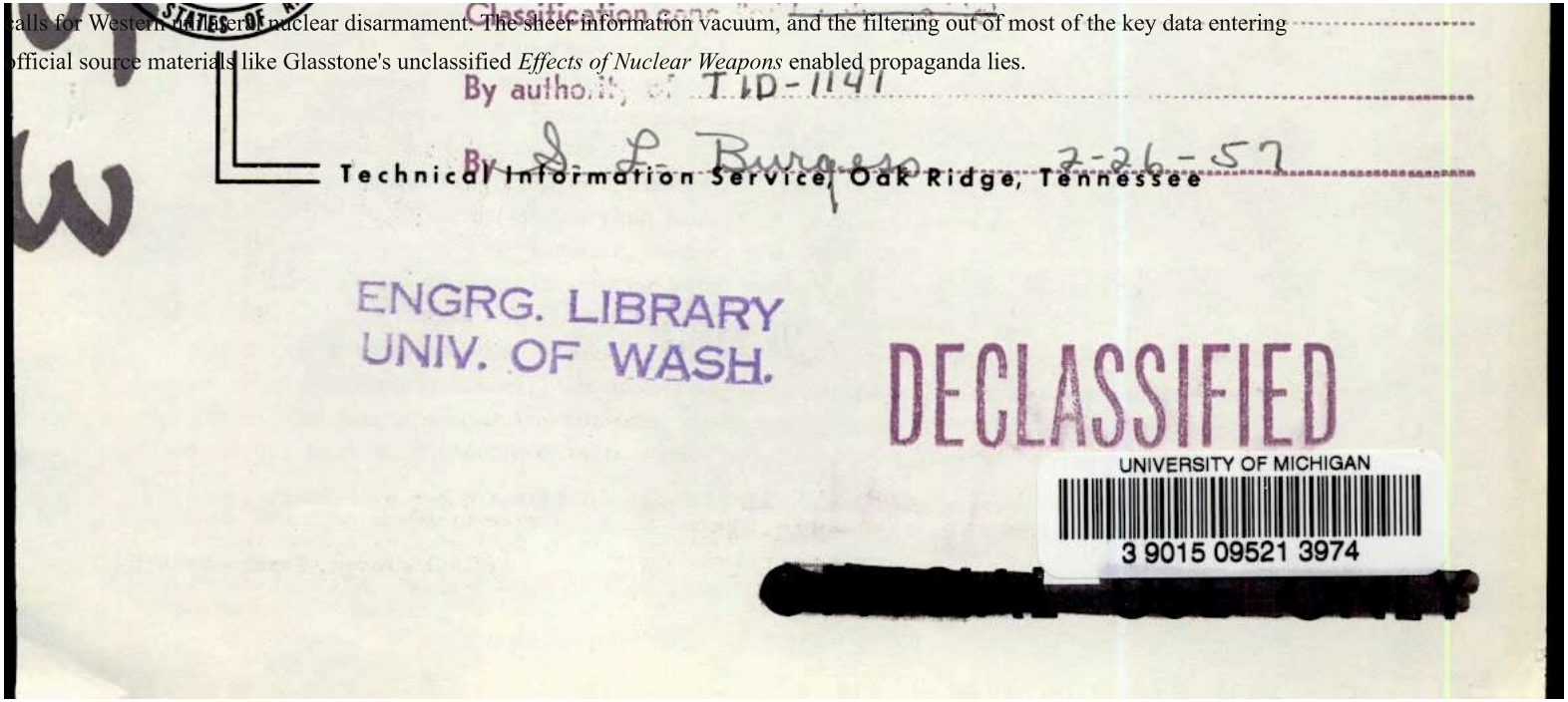
December 1953
[TIS Issuance Date]

Atomic Bomb Casualty Commission

OFFICIAL CLASSIFICATION OF THIS REPORT IS
UNCLASSIFIED

Although the Original C[illegible] has been removed from all pages.

calls for Western unilateral nuclear disarmament. The sheer information vacuum, and the filtering out of most of the key data entering official source materials like Glasstone's unclassified *Effects of Nuclear Weapons* enabled propaganda lies.



Issues of Thermonuclear War Termination

By Herman Kahn

Abstract: The possibility of thermonuclear war is here faced and its termination probed, in view of the fact that the missiles for such a war are already in existence and its actuality is therefore not truly "unthinkable." The premise is advanced that the '70's are perhaps the last decade of safety from such a war. Features of a modal model are explored, and six basic and omnipresent threats are discussed. The concept of a war of reciprocal reprisals is presented, as are the cases of ad hoc cease-fire, conditional cease-fire, and the continuation of war with both "rational" and "irrational" outcomes. Ways to hypothecate force in a stable balance-of-terror environment are then examined, and eleven types of war outcome analyzed. The various situations enhancing acceptability of at least an ad hoc cease-fire are listed, and the possible results of taking the recommended design cases seriously are emphasized. A sample mobilization scenario is given in the concluding remarks of warning.

Herman Kahn is director and trustee of the Hudson Institute of Croton-on-Hudson, New York, and was one of its principal founders. Before he left to help found the Institute in 1961, he was for twelve years with the RAND Corporation. He then wrote On Thermonuclear War *(published in 1960). He is the author or co-author of six other books:* Thinking About the Unthinkable *(1962)*; On Escalation: Metaphors and Scenarios *(1965); in collaboration with Anthony J. Wiener,* The Year 2000: A Framework for Speculation on the Next Thirty-Three Years *(1967), prepared for the Commission on the Year 2000 of the American Academy of Arts and Sciences;* The Emerging Japanese Superstate: Challenge and Response *(1970)*; *and with members of the Institute staff,* Can We Win in Vietnam? *(1968), and* Why ABM? Policy Issues in the Missile Defense Controversy *(1969).*

Mr. Kahn has lectured at many colleges and universities, and at defense study centers in France, Germany, Holland, Japan, Israel, Norway, and Sweden; and served as consultant to the Gaither Committee on Civil Defense and Strategic Warfare, the United States Air Force Scientific Advisory Board, and the Atomic Energy Commission.

My remarks in this paper are largely drawn from a Hudson Institute report, "War

Civilian Sanctuary and Tar
Policy in Thermonuc

By Edmund O. Stilla

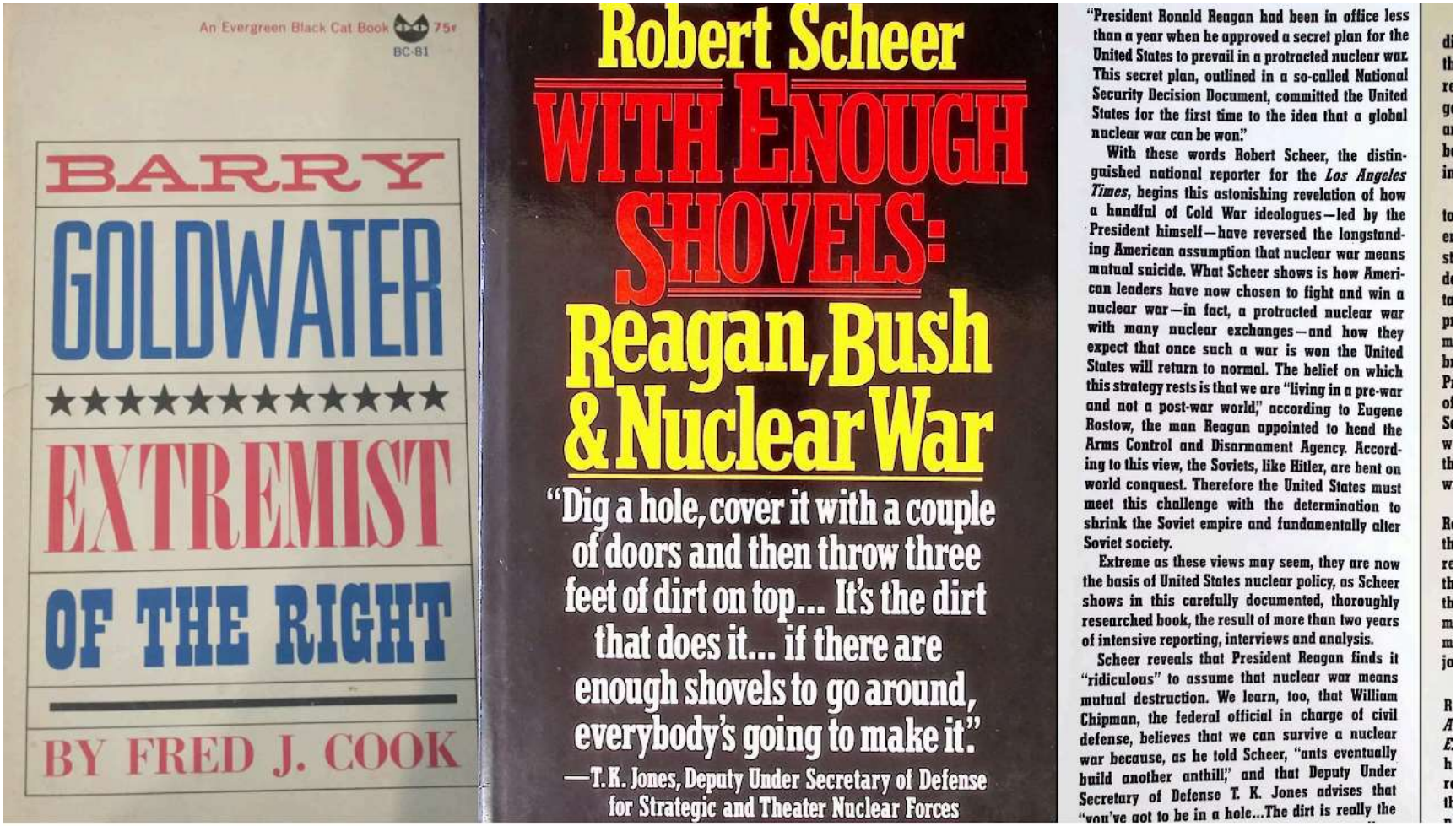
Abstract: Examining traditional co
fare, the author finds that civilians have
sidered appropriate targets of viole
productivity and home-front morale a
conditions of thermonuclear war, in wh
are likely to be used and command a
from the population at large. Under t
are thus important moral and practica
"open cities" and sanctuary policies to
duce over-all deaths. Three cases a
open cities and sanctuary policies to be
the time of a hypothetical war with t
to the Soviet Union's presumably relu
lies; and finally in the event of a futur
cal, with mainland China.

---

*Edmund Stillman is director of the European divisio
in Paris. Formerly a foreign service officer serving in
International Politics at the School of Advanced In
Hopkins University, he is editor and translator of* Bit
volt Behind the Iron Curtain *(1959); author, with W
(1961),* The Politics of Hysteria *(1964), and* Power
America's Foreign Policy *(1966); and author of* The I
Heritage History of the '20's and the '30's. *Mr. Stillm*

Termination, Issues and Concepts," by William Platt, Edmund Stillman, and myself. Although I was largely responsible for the chapters from which this paper is taken, I must acknowledge a debt to my colleagues for ideas and formulations. The conclusions, however, remain wholly my own.

ment of Defense and the Atomic Energy Commission.



In the 1964 election, Johnson won over Goldwater's call for nuclear deterrence to end war by Goldwater a right-wing extremist. Johnson dropped megatons of Vietnam losing the war. Carter's folk tried to repeat Johnson's "PR trick" against Reagan

Anti-nuclear "card playing" political "virtue signalling" propaganda keeps on coming with less and less impact, working against Goldwater in 1964 (probably largely because Johnson was wrongly seen as a member of the Kennedy tribe, having been his Vice-President), but failing in the hands of the opponents of Reagan and, recently, Trump.

ABOVE: Penney told JB Cook he spent £450 on baggage excess in Japan, air-freighting the critical "blast pressure sensitive" debris from Hiroshima to London, keeping it out of USSBS's big spanners, to ensure it was properly analysed, plus did specific nuclear air bursts at Maralinga to provide comparisons to Hiroshima and Nagasaki to determine blast attenuation by damage done to a city! Glasstone cited Penney's 1970 data report, yet completely ignored (and even contradicted) it! This was simply a cover-up.

11 June 1970 Price £2. 8s. (U.S. $6.25)

The nuclear explosive yields at Hiroshima and Nagasaki

by Lord Penney, F.R.S., D. E. J. Samuels and G. C. Scorgie

8. Recapitulation of yield estimates and best values

We recapitulate our estimates of the nuclear explosive yields and present the values in tables 8 and 9. The order in which the observations are given does not follow the section number, but has been chosen according to the distance from ground zero. The yield estimates have all been made in terms of an explosion over bare ground, whereas the mechanical damage done by the blast and the scattering of the blast by buildings in the two cities must to some extent have reduced the blast waves as the waves spread.

51-3

Table 8. Hiroshima

observation	distance GZ/ft	yield/kT	reliability	comments
collapsed blue print container	4580	peak overpressure down 30 %	?	may have been some elastic recovery and/or some reflation; yield falling?
dishing of tops of office cabinets	4580	9	f	yield falling?
10 to 20 % of empty 4-gal petrol cans	5700	peak over-pressure down	g	clear evidence that the blast was less than it would have been from an explosion over

4-gal petrol cans undamaged		pressure down by about half		would have been from an explosion over an open site

TABLE 9. NAGASAKI

observation	distance GZ/ft	yield/kT	reliability	comments
overturning of memorial stones	4610	$\geqslant 19\frac{1}{2}$	g	should be a close under-estimate;
	5430	> 19 to 21	g	density of stone not known accurately
0 to 20% of empty 4-gal petrol cans undamaged	6400	peak over-pressure down by about half	g	clear evidence of reduction of blast by the damage caused and by scattering
no damage to empty 4-gal petrol cans	7600	over-pressure not much over 1 lbf/in^2	g	clear evidence of reduction of blast

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from Pres' book 3

THE WHITE HOUSE
WASHINGTON

7 August 1961

MEMORANDUM FOR THE PRESIDENT

Subject: Report of Ad Hoc Panel on Nuclear Testing

1. The subject report limits itself to the technical questions involved in a decision by the United States on the resumption of testing. However, the paper needs to be read with an eye to the military strategy which the United States intends to pursue in order to determine the attitude on testing which is most favorable to that strategy.

2. The USSR enjoys important military advantages which we need to offset. In the field of strategic weapons, they have the option of a first strike against a known target system and have a better defense against our retaliatory reaction which will eventually include an anti-missile missile probably deployed some years before we can have one of our own. To offset these advantages we need light, high yield warheads adapted to a mobile delivery missile system as well as to the requirements of small multiple warheads and decoys.

3. In the tactical field, the Sino-Soviet Bloc has a very considerable superiority in trained military manpower with which to oppose the United States and its Allies on the ground. The primary requirement for effective tactical weapons in our hands is to offset this manpower. Even though the USSR also had tactical nuclear weapons as good as our own, the net effect would be to reduce the amount of manpower that could be employed safely in the combat zone. Then, it becomes like a football game in which, regardless of a disparity of size of the squads, only eleven men can be played at a time by either side.

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E.O. 12958, Sec. 3.6
NLK-98-73
By mmk NARA, Date 5/25/99

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Effective tactical weapons in our hands adaptable to delivery systems that can weapons, and which are discriminatory effect can provide the United States fo an answer to Soviet manpower without ou of permanent mobilization.

4. In summary, the pros and cons differently if we consider the requirer from U.S. military strategy.

a. If we are to absorb the f a secure retaliatory force, which lightweight warheads. Further tes to develop such warheads without yield.

b. If we must conclude that to an anti-missile missile, again test to develop lighter warheads. to permit decoys and multiple warh Soviet AICBM.

c. If we are to have the best with the characteristics describe we need to resume testing. Altho tactical weapons now, they are ge their aggregate effect too destru use in friendly territory. For th forces and for the protection of among which we expect to operate, us than to the Soviets to perfect weapons.

d. Thus, a failure to resume progress in developing both light very small atomic weapons. Becau strategy, progress in both these us than to the USSR. This fact a of testing at once unless the mos arguments can be adduced against

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REPORT

of the

AD HOC PANEL ON NUCLEAR TESTING

July 21, 1961

Wolfgang K. H. Panofsky, Chairman
William O. Baker
Hans A. Bethe
Norris E. Bradbury
James B. Fisk
John S. Foster, Jr.
George B. Kistiakowsky
Frank Press
Louis H. Roddis
John W. Tukey
Walter H. Zinn
Spurgeon M. Keeny, Jr.,
Technical Assistant

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WH S&T Cont. No. TS-107
This document consists of 34 pages,
No. 1 of 30 copies, Series A.

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NLK/86-142
By NARA, Date 6/1/98

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The principal areas of weapon improvemen
field involve: a) economy in the use of fissionable
diameter to permit interchangeability with convent
enhancement of neutron radiation effects. Howeve
the potential value of nuclear warhead improvemen
the USSR since there is no established doctrine on

Enhanced neutron radiation weapons which
effective against personnel under certain circumst
in tactical warfare. A prototype [redacted]
would produce some enhancement in neutron radiat
a conventional fission weapon, is available for test
[redacted] would, if technically feasible, combi

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with low cost. If such devices can be developed in a
configuration, the most optimistic estimate for earl
first device for stockpile is 1965. [redacted]

operational availability would, therefore, not be app
deferment of test resumption by a year or two. The
developments is strongly dependent on the extent to
emphasizes the use of nuclear weapons in tactical w

In summary, comparing Case III, extensive clandestine Soviet testing, with Case II, unlimited underground testing, it would appear that the U. S. capability for a pre-emptive counterforce strategy would be about the same in both situations since the USSR would be able in either case to develop improved mobile systems while our offense force would not be significantly improved. At the same time, the counterforce capability of the USSR would eventually be improved and the deterrent capability of the U.S. correspondingly reduced under Case III as compared with Case II, since the U. S. would not be able to develop smaller warheads to facilitate mobility or to permit the addition of penetration aids to existing warheads. The extent and significance of this change depends on whether U.S. deterrence is considered to become inadequate and how important very small warheads [redacted] are considered to be to assure survival of strategic systems or to assure penetration of enemy AICBM defense.

5. "Clean" Weapons

"Clean" weapons, [redacted] constitute a special class of strategic weapons. While the reduction in fallout may diminish their usefulness in a deterrent strategy, it is possible that in some circumstances they would be useful to reduce fallout on our allies. With unlimited testing, both the U.S. and USSR could probably develop "clean" weapons [redacted]

C. TACTICAL WEAPON SYSTEMS

1. General

Tactical nuclear weapons are defined as ammunition for defensive and offensive systems whose primary purposes are the conduct of operations, (ranging from very small use of force to large operations), short of all-out war between the primary contestants. The weapons cannot be defined as to yield, size, methods of delivery or effects, but only as to purpose. Tactical nuclear systems can be considered in the role of a "deterrent" strategy to discourage enemy actions (either nuclear or non-nuclear) short of a strategic exchange. Alternatively, tactical nuclear weapons can be considered in the role of a "counterforce" stragegy for actual use in large or small quantities on either a broad battlefront or in isolated limited engagements. There exist strong differences of opinion as to whether nuclear weapons can be employed in many cases without escalation into general war. It is difficult to evaluate the potential value of nuclear warhead improvements to either the U. S. or the USSR since there is no established doctrine on the use of tactical weapons.

The principal areas of weapon improvements in the tactical weapons field involve: a) economy in the use of fissionable materials; b) reduction in diameter to permit interchangeability with conventional ammunition; and c) enhancement of neutron radiation effects. Since particular attention has recently been focused on "neutron" bomb in the discussion of the resumption

of testing, the enhancement of r
in some detail in an attempt to

2. Enhanced Neutron Radia

Present very low-yield
against personnel mainly by the
of this radiation is particularly
similar blast-resistant enclosu
lethal area and the territory saf
use of such weapons in closer e
radioactivity on the ground woul
after the use of nuclear weapons
enhancement of these neutron ef
small yield devices [redacted]

Two entirely different ty
have been conceived by the U. S

Panofsky 7

~~TOP SECRET~~

September 5, 1961

MEMORANDUM OF MINUTES OF NATIONAL SECURITY COUNCIL MEETING - August 8, 1961

Subject: Panofsky Report

The meeting opened with an extensive summary of his panel's report by Dr. Panofsky. One point to which he gave particular emphasis was that the party which is engaged in concealment can always succeed if a sufficient effort is made. In summary, Dr. Panofsky made four points:

1. A ban on testing does impose limitations on our development;

2. Such limitations can in large measure be compensated for by improvements elsewhere in our technology.

3. In the long run, nevertheless, such limitations will impair our strength.

4. In the short run, the matter is not critical.

The President asked Dr. Panofsky to comment on the remarks of the JCS about his report. Dr. Panofsky replied that he could not make any intelligent comment because the criticisms of the Joint Chiefs were not spelled out.

Dr. Seaborg remarked that the Soviet Union may well be testing in the laboratory, with a much higher limit on what would be classed as a laboratory explosion. Dr. Seaborg wanted a higher limit on U. S. laboratory tests, and the President appeared to agree.

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(After the meeting, the President authorized Dr. Seaborg to conduct laboratory tests up to a limit of one-ton TNT equivalent.

Mr. McCloy reported Khrushchev's remark that, in a discussion of chemical explosions, "it all depends on what you mean by testing." He also reported that Khrushchev had told him that he was receiving pressure from the military not in technical but in strategic areas. Khrushchev had mentioned 100-megaton bombs as the economical way of using his large rockets.

General Lemnitzer said that the main concern of the Joint Chiefs of Staff was with the lack of intelligence on what the Soviets are doing and on the character and strength of Soviet weapons and the Soviet stockpile. The Joint Chiefs were further concerned about what the Soviet Union might have done since 1958. The Joint Chiefs were not currently advocating atmospheric testing. They objected strongly to the notion that there was no tactical doctrine for the use of atomic weapons. General Lemnitzer asserted that the Chiefs definitely do have such a doctrine. They did not object to a "reasonable delay" but the meaning of this phrase turned on definition. There would be a great disadvantage if we were confronted by the Soviets with their possession of a serious new weapon.

The President asked if under the doctrine of the JCS we could have a tactical nuclear war. General Lemnitzer's answer was in the affirmative but he recognized that many people would disagree.

There followed a careful discussion of the need for testing in connection with the development of the so-called neutron bomb. In this discussion it became clear that while tests would not be needed in the near future for the neutron bomb itself, they would be helpful in the area of "staging experiments" which might turn out to be a limiting factor upon the development of a neutron bomb as an effective weapon, if in fact such a device proves practicable. General Taylor strongly supported the need for the neutron bomb.

Dr. Wiesner pointed out that there were not yet any good studies of the precise effects of such a weapon, but Mr. Foster replied

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that certain of its quali
radius of effectiveness

The President asked wh
Dr. Panofsky replied th
move toward cleaner st
development of the neut
proved to be the most d
arrow, which would be
tactical weapons in gre
the weight of a 100 kilo

We could test for impro
vulnerability in our own

The President then aske
underground while the f
question received no de
sentiment to the effect
ground as well as not in

Speaking in general sup
that testing means prog
than to the Soviet Union
strong defense of our in
that we know much mo
the quality and content
stated that there ought
between the JCS and oth
Taylor to consult with G
Panofsky in order to de
possible.

Mr. McCloy believed th
to wait until 1962 to tes
As he read the Panofsky
able in technical terms.
here a major political p
fairly soon, but the U N
have to emphasize the f
prove that the Soviet Un
ment on this on Wednes

UNITED STATES ATOMIC ENERGY COMMISSION

VOLUME XVI

In the Matter Of:

J. ROBERT OPPENHEIMER

J R OPPENHEIMER'S SECRET TESTIMONY ON
TRANSCRIPT AT PAGES 2296-

Q Let me turn now to the so-called Vista report about which there has been very considerable testimony and not altogether consistent. Did you in fact prepare a draft of an introduction to Chapter 5 of the Vista Report?

A Yes, I did. It was not a solitary labor. When I got there, I found a mass of drafts, papers and notes. People who had written these were Christie, Bacher, Lauritsen, possibly others. But those were the principal ones. Christie had spent quite a lot of time at Los Alamos quite recently. We went over what they wanted to say and sometimes discussed it from the point of view, did they really want to say it, and were they sure that this was what they wanted to say. I think my contribution to the writing of this was that I -- well, let me back off.

The principal thing they wanted to say was that atomic weapons would be useful in the defense of Europe, in the antiair campaign, and many other ways that you will know as

will learn a great deal, and the primary
of two kinds. First that you have capab
allow you a lot of options, which give y
can make at the time, and second, that y
if your guesses have been wrong, your te
are such that you can change quickly in
battle. If you are wrong about the effe
airfield, if you are not getting away wi
make the proper reassignment of fissions
ware and aircraft to do what is effectiv
two guiding ideas that I believe I broug
of the report.

I then with the help of the ot
either Chapter 5 or its introduction, I
it was called. It was a matter of some
and had some 20 odd recommendations.

Q Was there in this draft at any
that the United States, this country, sh
would not use atomic weapons strategical
Union until after such weapons had been
cities?

A Let me say the best of what I

much about as I do, and that for this to happen, developments of hardware, of tactics, of command structure, of habits of behavior, of exercises needed to be gone into, which would give to our tactical readiness at least a small part of the training and precision which the Strategic Air Force already had. I believe my contribution apart from incidentals to the writing of this report was a notion that occurred very early and I believe has remained in all drafts, and that is still basic to my own views, and that is that this is not a very fully known subject -- what atomic weapons will do, either tactically or strategically, that as you go into battle, you

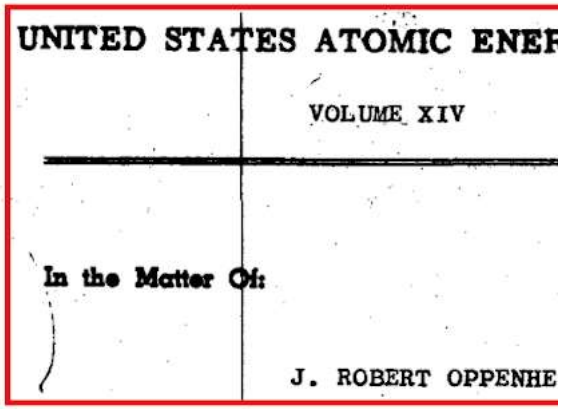
It is related to the question you asked identical with it. We said that we were the Europeans and that one of the things alert to is how the Europeans would view their own cities by the enemy. Therefor envisage the situation that would occur i air as a deterrent to the destruction of well as our own, and in that circumstance great deal that could and should be done and that we should be prepared for that We did not recommend a preclamation.

David Griggs testimony against Oppenheimer:

Q What was it?

A There were three things about this general area of the Vista Report that I regarded as unfortunate from the standpoint of the Air Force. I can't be sure that all three of these things were in the draft that was written by Dr. Oppenheimer, but I think they were. However, the first and perhaps most controversial point as far as we in the Air Force were concerned, I am quite sure, was in the part that was said to have been prepared by Dr. Oppenheimer. This was a statement substantially to the effect that it was recommended that the President of the United States announce that the United States would not use its strategic air force in attack on cities or industrial economy, as I recall the statement, until our cities had been attacked.

(Oppenheimer hearings transcript, page 2561.)



UNITED STATES ATOMIC ENER

VOLUME XIV

In the Matter Of:

J. ROBERT OPPENHE

(David Griggs was geophysics professor at UCLA)

I might say further on that previously spent a period of a few da Project, specifically suggesting ways thermonuclear weapons could be useful There have since been other analyses and the conclusions have not been cons statement in the Vista Report. (Pag

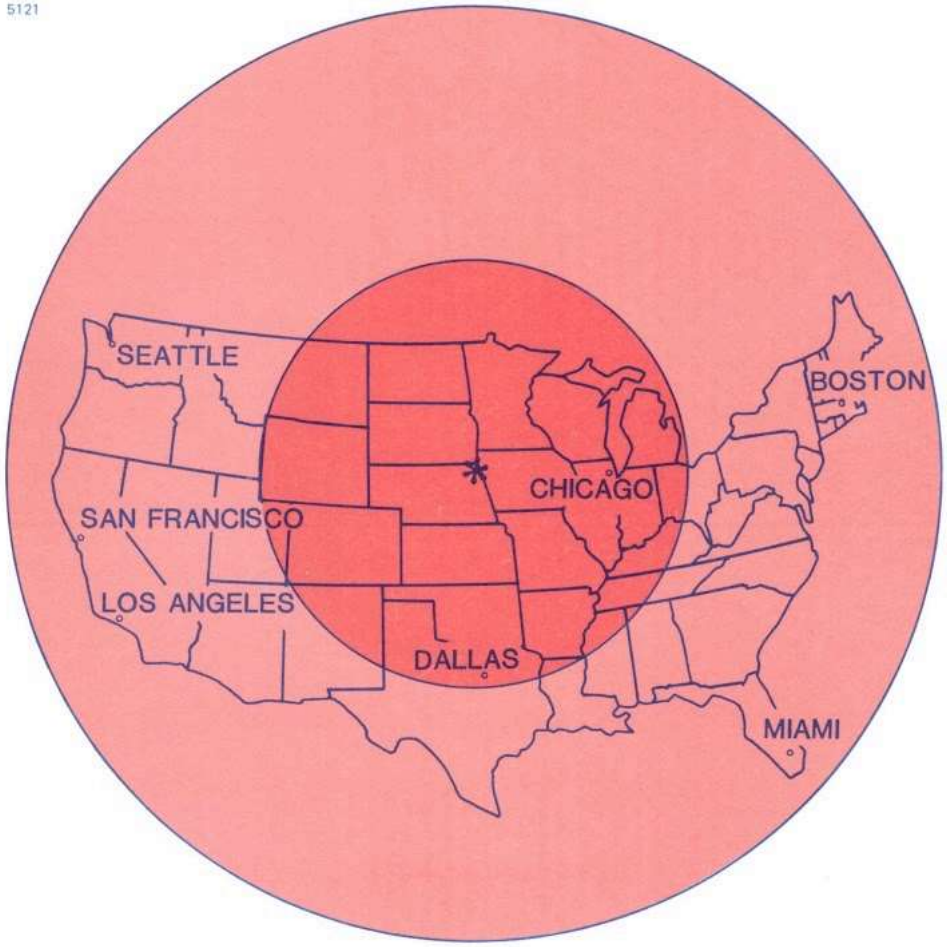

Ground zero: Shima hospital

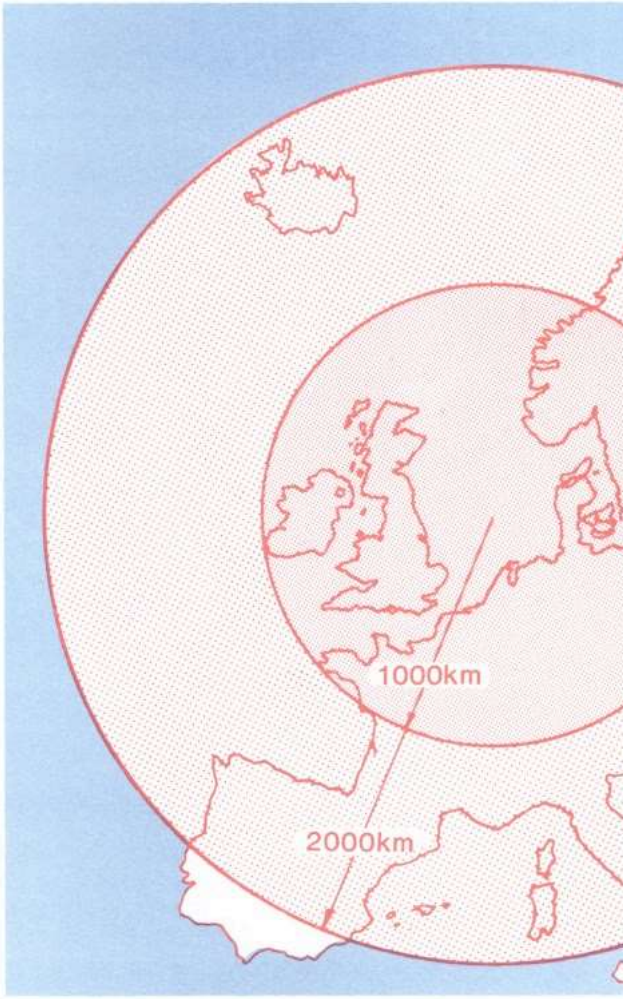

Ground Zero: Shima Hospital

E.M.P. blanket area for nuclear burst at 50 mile and 120 mile heights

One megaton burst over the No

Source: UK Marconi Radar Systems, "Military Shelters Technical Manual", page 82 quotation and illustrations





* POSITION OF NUCLEAR BLAST

INNER CIRCLE – COVERAGE IF DETONATED AT A HEIGHT OF 50 MILES

OUTER CIRCLE – COVERAGE IF DETONATED AT A HEIGHT OF 120 MILES

DETRIMENTAL DAMAGE TO EQUIPM

SERIOUS DAMAGE TO EQUIPMENT

CONCLUSIONS

In essence then, electronic communication

It is obvious that this whole subject of EMP protection has far reaching consequences for everyone.

From what has been said so far, it can be seen that a deliberate detonation of a nuclear weapon to maximise the EMP effect could and probably would occur in any future conflict. This could affect countries not even involved in the conflict itself.

In essence then, electronic communication would cease to exist once an exo-atmo produces a significant EMP has taken place supposed that this would be a temporary si not the case and wide spread and immed equipment would occur, which would take correct. It is a sensible precaution to p important systems. The Marconi shelter r effective way of doing it.

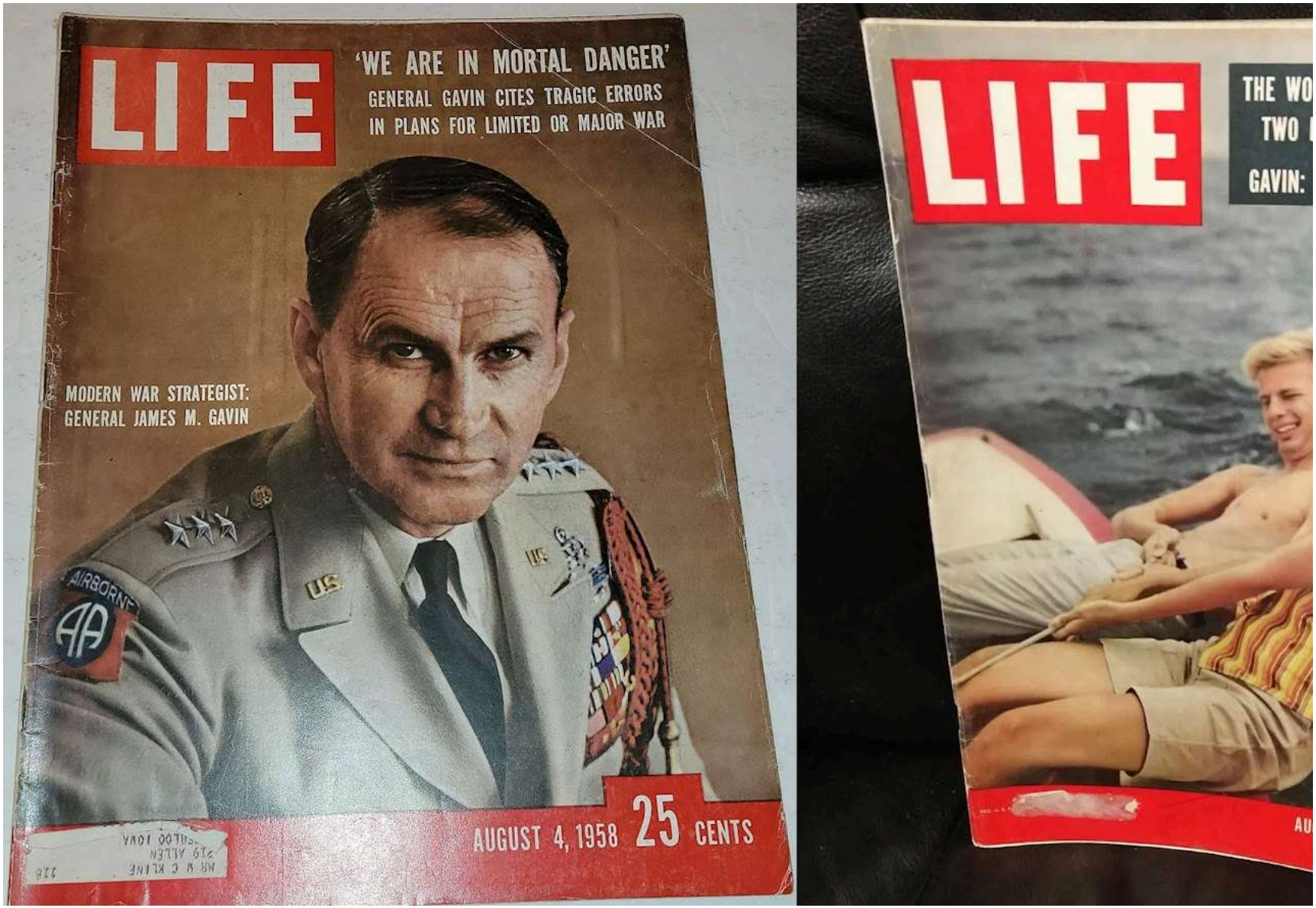

LIFE
'WE ARE IN MORTAL DANGER'
GENERAL GAVIN CITES TRAGIC ERRORS
IN PLANS FOR LIMITED OR MAJOR WAR
MODERN WAR STRATEGIST:
GENERAL JAMES M. GAVIN
AIRBORNE
AUGUST 4, 1958 25 CENTS
LIFE
THE WO
TWO
GAVIN:

Table C-1 Air Blast Damage Radii Buildings and Structures

Surface Burst Only* (Distances in Meters)

MOD - moderate SEV - severe

Target Description	Degree of Damage	Yield (KT) .01	Yield (KT) .05	Yield (KT) .1	Yield (KT) .5	Yield (KT) 1	Yield (KT) 5
Multistory wall-bearing building, brick apartment house type, up to three stories.	MOD	69	140	207	398	557	1284
	SEV	54	108	160	307	429	988
Wood frame building, house type, one or two stories.	MOD	92	193	286	555	723	1643
	SEV	62	129	191	371	517	1238
Light steel frame industrial building. Single story, up to 5-ton crane capacity.	MOD	45	91	127	263	339	859
	SEV	21	42	59	133	200	553
Multistory steel frame office type building, 3 to 10 stories, earthquake resistant construction.	MOD	27	51	72	133	185	436
	SEV	18	34	48	90	124	291
Multistory steel frame office type building, 3 to 10 stories, nonearthquake resistant construction.	MOD	33	67	93	174	241	576
	SEV	21	42	59	110	151	361
Multistory reinforced concrete frame office type building, 3 to 10 stories, earthquake resistant.	MOD	28	56	78	144	194	466
	SEV	20	40	56	103	139	334
Multistory reinforced concrete, frame office type building, 3 to 10 stories, nonearthquake resistant.	MOD	34	65	91	168	231	595
	SEV	23	44	61	113	154	417

Table C-3 Air Blast Damage Radii for Field Fortifications

Surface Burst Only* (Distances in Meters)

MOD - moderate SEV - severe

Target Description	Degree of Damage	Yield (KT) .01	Yield (KT) .05	Yield (KT) .1	Yield (KT) .5	Yield (KT) 1	Yield (KT) 5
Command post and personnel	MOD	18	36	49	93	122	286

shelter, modular sections 6 feet by 8 feet with top 3 feet to 5 feet below ground surface, earth covered, and covered trench entrance.	SEV	17	34	46	88	115	269
	(SIMILAR TO CIVIL DEFENSE IMPROVISED EMERGENCY NUCLEAR WAR SHELTERS)						

Table C-4 Air Blast Damage Radii for Military Field Equipment

	Surface Burst Only* (Distances in Meters)	MOD - moderate			SEV - severe		
Target Description	Degree of Damage	Yield (KT) .01	Yield (KT) .05	Yield (KT) .1	Yield (KT) .5	Yield (KT) 1	Yield (KT) 5
Tracked vehicles	MOD	17	38	54	115	157	411
	SEV	11	24	34	72	98	255
Artillery	MOD	18	39	55	117	160	419
	SEV	16	34	48	102	139	363
Wheeled military vehicles	MOD	23	52	74	157	215	563
	SEV	16	35	50	106	145	379
Supply dumps	SEV	11	23	33	68	93	243

Table C-15 Radius of Detonation for Various Mines

(Distances in Meters)

For Surface Burst*

Mine Type	Yield (KT) .01	Yield (KT) .05	Yield (KT) .1	Yield (KT) .5	Yie (K 1
A/T	45	91	124	237	31
A/P	137	279	379	730	95

Table C-16 Radii of Tree Blowdown Obsta

For Surface Burst*

(Distance in Meters)

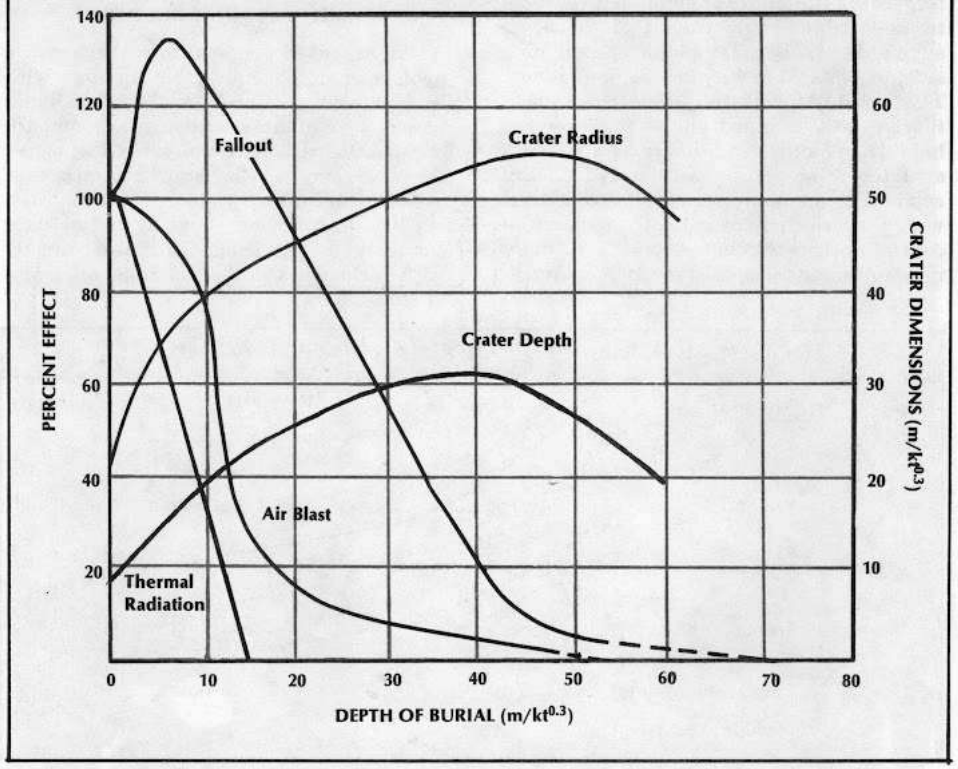
Type of Tree	Yield (KT) .01	Yield (KT) .05	Yield (KT) .1	Yield (KY) .5	Yield (1
Deciduous	63	175	223	429	556
Coniferous	63	89	144	300	397

subsurface detonation of a 0.05 KT ADM buried at a depth of 17 meters. This is a reduction of yield by a factor of 20 compared to surface detonation. It is a reduction by more than 1,000 compared to the other nuclear system described.

CONTROL OF UNDESIRABLE EFFECTS

One of the greatest advantages of using ADM is the ability to control nuclear effects. This capability is especially important in ADM employment since ADM are normally used near friendly troops and therefore can create a troop safety hazard. The advantages of control of undesirable effects are apparent in two ways. First, the use of extremely small yields for target destruction reduces undesirable nuclear effects significantly compared to other nuclear methods of destruction. Second, while burial can reduce or eliminate most undesirable nuclear effects, the effectiveness of the cratering action is increased. See figure on page 2-5.

CONTROL OF ADM EFFECTS



Note in the graph on page 2-11 that while air blast, nuclear radiation, and thermal radiation are greatly reduced with increased depth of burst, the primary effect of cratering is maximized. Thus, as a result of the proper selection of depth of burst, the nuclear effects required for target destruction can be optimized while many of the undesirable effects can be reduced. Reduced troop safety distances result, allowing the use of ADM in areas which would otherwise be prohibited to nuclear weapons use. See figure on page 2-13.

ACCURATE TARGET ACQUISITION AND PREPLANNING

ADM are intended for employment against materiel-type targets. Therefore, most targets are stationary or permanent, such as tunnels, highways, bridges, airfields, or supply depots. Because of this specific mission, most ADM targets can be preplanned. The best ADM yield and emplacement position can be determined, and an emplacement hole or demolition chamber can be constructed long before anticipated enemy action. This preplanning capability combined with the selection of a depth of burst to control nuclear effects results in a versatile range of options. The existence of preplanned

LOGISTICAL COMPARISON OF ADM

	ADM
Yield	0.01 KT
Weight	100 pounds
Volume	0.5 cubic meters
Transportation	2 persons
Emplacement time*	0.5 man-hour

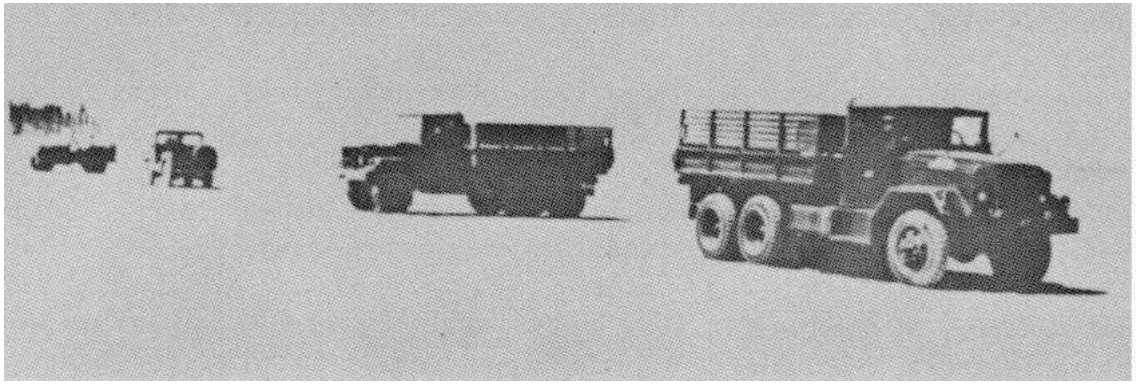
*Excludes security time

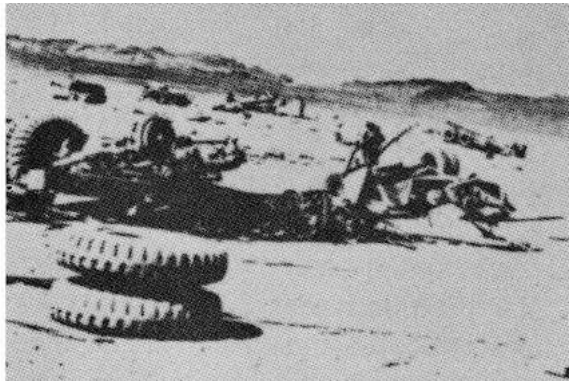
Table C-17 Radius of Fire Areas for Surface and SubSurface Bursts

(Distances in Meters)

Yield (KT)	DOB (Meters)	Dry Forest	Green Forest	50 Percent Relative Humidity: Wholesale Business Buildings	50 Percent Relative Humidity: Retail Business Buildings	50 Percent Relative Humidity: Poor Urban Homes	50 Percent Relative Humidity: Medium Urban Homes
.01	0	12	75	40	35	45	40
	3	3	20	10	10	10	10
	5	0	0	0	0	0	0
	10	0	0	0	0	0	0
	15	0	0	0	0	0	0
.05	0	250	155	80	70	90	80
	3	135	80	45	40	50	40
	5	55	35	20	15	20	15
	10	0	0	0	0	0	0
	15	0	0	0	0	0	0
.10	0	345	210	110	100	120	105
	3	215	130	70	60	75	65
	5	125	75	40	35	45	40
	10	0	0	0	0	0	0
	15	0	0	0	0	0	0
.50	0	760	440	230	200	255	220
	3	575	335	175	155	195	165
	5	455	265	140	120	155	130

	10	155	90	45	40	50	45
	15	0	0	0	0	0	0
1.00	0	1065	630	315	280	350	300
	5	720	425	215	190	240	205
	10	375	220	110	100	125	105
	15	30	15	10	10	10	10
	20	0	0	0	0	0	0
	25	0	0	0	0	0	0
	30	0	0	0	0	0	0
5.00	0	2330	1490	770	675	860	735
	5	1860	1190	615	540	685	585
	10	1390	890	460	400	510	435
	15	920	590	305	265	340	290
	20	450	285	150	130	165	140
	25	0	0	0	0	0	0
	30	0	0	0	0	0	0





ABOVE: Confidential classified nuclear weapon test report WT-775 proves that the large effect of humidity and thus fuel water content on thermal ignition energy *was known prior to the 1957 Glasstone Effects of Nuclear Weapons* but, like the secret classified US Strategic Bombing Survey 6 volumes on Hiroshima and Nagasaki which proved the facts of the firestorm in direct contrast to lies circulated in Glasstone's book, the data was simply excluded from publication. The equilibrium moisture content of unpainted wood or fine kindling is about 20% of the relative humidity, so at 80% humidity "dry" wood exposed to that humid air will contain 0.2*80 = 16% water. Since all common fire fuel ignites at temperatures well above the boiling point of water, each gram of water in fire fuel takes away in excess of 540 calories of energy in boiling off, and it is this fact that makes ignition energy a function of moisture content. Crumpled newspaper,

Confidential classified - Glasstone omits the moisture ignition data!

OPERATION UPSHOT-KNOTHOLE

Project 8.11b

IGNITION AND PERSISTENT FIRES RESULTING FROM ATOMIC EXPLOSIONS— EXTERIOR KINDLING FUELS

REPORT TO THE TEST DIRECTOR

by

Fred M. Sauer, Keith Arnold, W. L. Fons, and Craig C. Chandler

page 4:

December 1953

energies of newspaper and pine needles. Kindling fuels adjacent to wood structures increase fire build-up. Storage of such fuels in metal trash cans and tying of newspapers in compact bundles materially reduce fire hazard. Automobiles were not found to present an immediate fire problem; however, if seat materials are frayed or worn they may smolder and flare up several hours later.

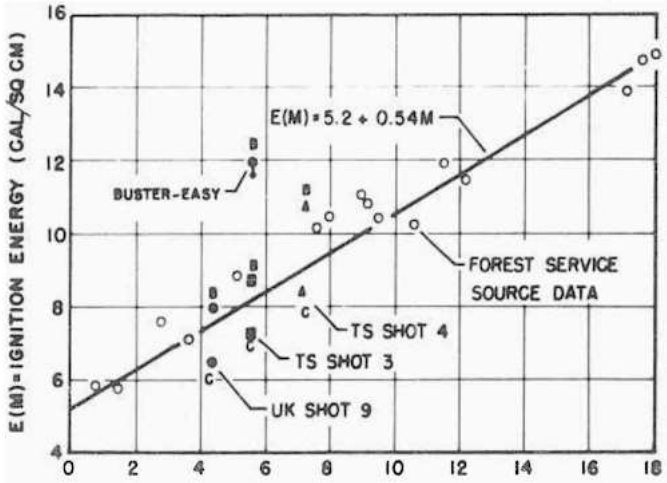


Fig. 4.2 Critical Ignition Energy for Sustained Burning-Ponderosa Pine Needles. Exposure normal to incident radiation. B--burned; C--charred.



Fig. 3.2 Three-car Gro Was Burning V

Although no fire was vis in any of the three car groupings and burned completely. This car ing and facing away from ground

Encore nuclear test, Neva (Typical city humidity = 50- 10% of 5 ignited fences ra

Weapon test report WT-775

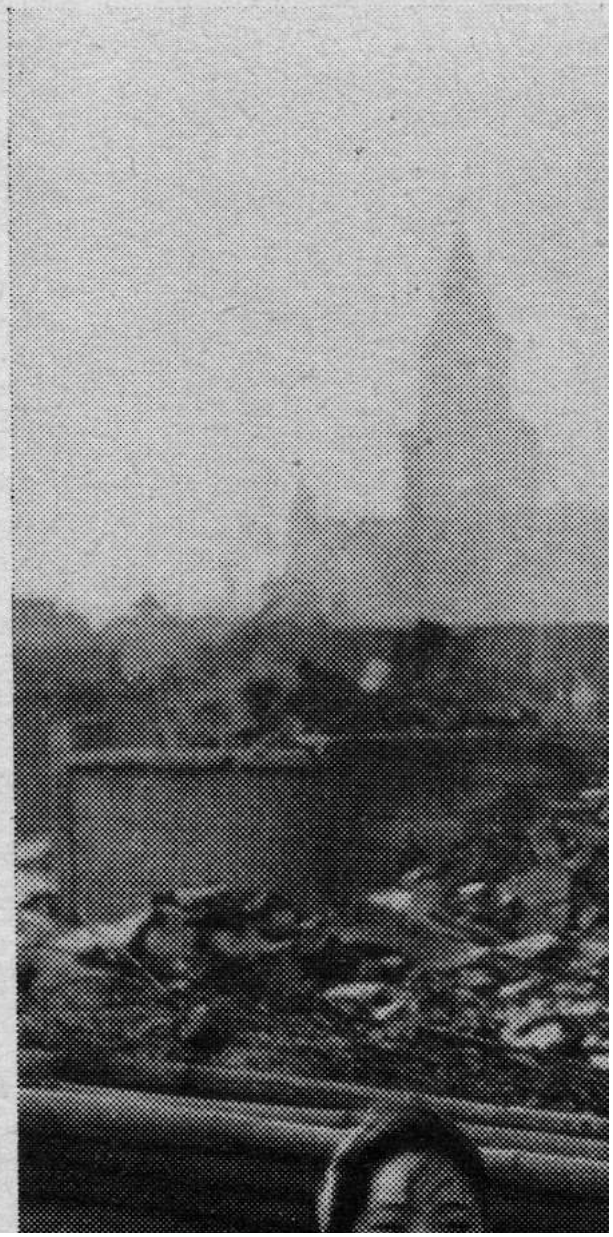
outdoors with a direct view of the fireball unobscured by city buildings, or inside on the top floors of buildings with such a view, facing the fireball, could be ignited "instantly" with "flashover" firespread after drying out at the 19% humidity of the Nevada test site for the Encore nuclear test, but the ignition energy is substantially greater for typical building contents at a more typical 50-80% city humidity level. Also note that even at 19% humidity in Nevada, it took between 5 and 20 minutes for the *first 10% of fences to burn in Nevada: contrary to the instantaneous flashover burning for dry crumpled newspaper.* Cars only ignited in these Nevada nuclear tests at 19% humidity where the upholstry had been deliberately ripped to expose inflammable seat stuffing, and even then they burned slowly! Glasstone omits all this key evidence from *Effects of Nuclear Weapons,* leaving instead confusion and ignorance that was exploited by Russian fronts for Western disarmament.

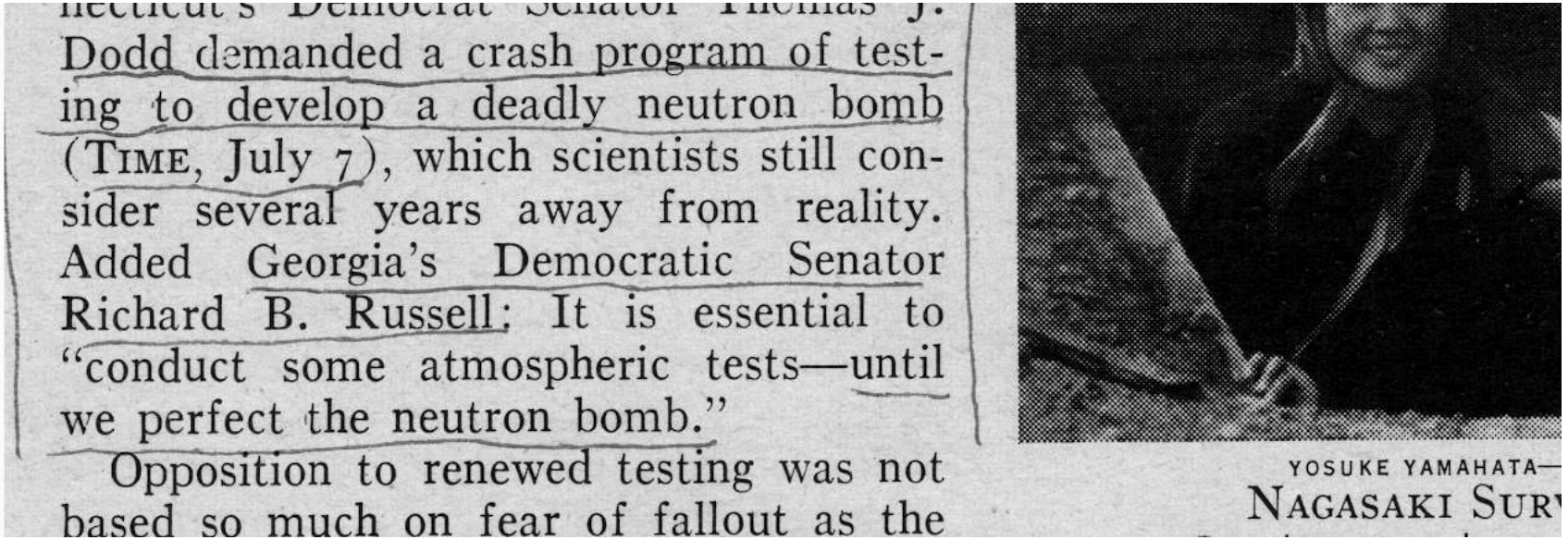

What you get when tactical nuclear deterrence is banned by arr
Pyongyang after USAF during the Korean War

for short-lived radioisotopes to die, the addition of chemicals in treatment plants would further cut radioactivity. Says University of California Professor Everett R. Dempster: "Fallout is a thing to be avoided, but we're not at the danger point yet. To me the issues of peace and war are very much more important than fallout and mutations."

Polishing the Adjectives. It is in the interests of those issues that the U.S. finds itself with little choice but to resume atmospheric testing. Though the Administration has not yet decided just when to begin testing, pressure grew in Congress for a quick test resumption. New Mexico's Senator Clinton P. Anderson and California's Representative Chet Holifield—the two senior Democrats on the Joint Congressional Committee on Atomic Energy—called last week in strong words for atmospheric tests. Said Anderson: "We must conduct atmospheric tests because the underground tests have not given us all the answers we need." Connecticut's Democrat Senator Thomas J.

Because of more advan
the U.S. atmospheric tes





necticut's Democrat Senator Thomas J. Dodd demanded a crash program of testing to develop a deadly neutron bomb (TIME, July 7), which scientists still consider several years away from reality. Added Georgia's Democratic Senator Richard B. Russell: It is essential to "conduct some atmospheric tests—until we perfect the neutron bomb."

Opposition to renewed testing was not based so much on fear of fallout as the

YOSUKE YAMAHATA—
NAGASAKI SUR

ABOVE: Time magazine of 10 November 1961, pages 19 and 25, reporting on arguments to test the "neutron bomb", also showing example of a shelter in Nagasaki and Russian civil defense.

seem to mind, or even notice, when the drizzle turned into a steady rain.

Roomy Tomb. What seemed to be coming under question in Russia last week was the system itself. Unless Khrushchev is prepared again to silence his people, he must give believable answers to the two most trenchant questions about Communism: How could it allow a man like Stalin to seize complete control, and how can it prevent the rise of another Stalin? Khrushchev is trying to show that Stalin's tyranny was the result of one man's villainous character; the Russian people may wonder whether, in essence, it was not really the inevitable result of Communism.

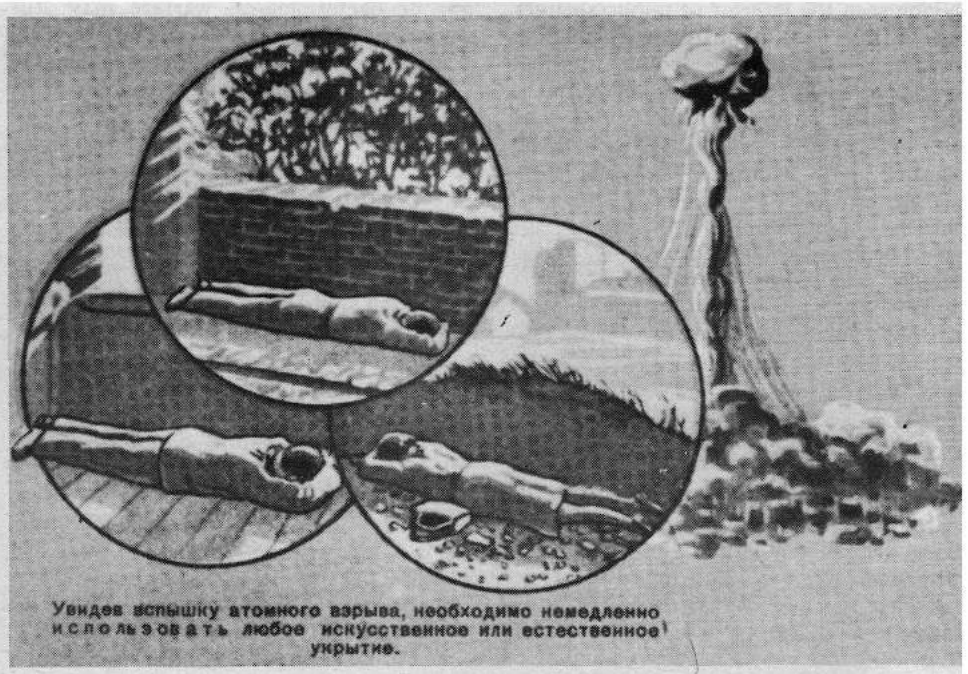
Whatever the doubts and questions, by week's end the roomy tomb on Red Square was once more open to the public, but with Stalin's name as well as his body expunged from sight.

RUSSIA

Shelters on the Other Side

With broad sarcasm, *Pravda* Columnist S. Vishnevsky dismissed the budding U.S. atom-bomb shelter program. "If we could only open the eyes of those moles," he wrote recently, "they would surely see that there is no sense in hiding underground. But moles are unseeing creatures and moles of bourgeois origin suffer from class blindness." The sneer was less than convincing, for the writer must have known what most of the U.S. does not: the Soviet Union has been at work for more than a decade on a shelter program of its own, spending an estimated $500 million a year (current U.S. figure: $16,500,000) on civil defense training courses for 22 million Soviet citizens, equipping bomb shelters for more than 30% of the population.

Russian preoccupation with civil defense is nothing like the current U.S. wave of concern about shelters. Unlike the U.S., the Soviet Union started its civil defense program long ago, has proceeded routinely without public debate or fanfare. No new shelter construction is



SOVIET CIVIL DEFENSE GUIDE
An assumption that war will begin favorably.

Gouré, accounts for the absence of bomb shelter signs on buildings. "Because they believe they will have more time before attack than we," he says, "they have planned for putting up such signs during a long-range alert. The shelters are there, but they aren't posted. During my trip, I asked a man in Stalingrad about a vented block of unmarked concrete sticking out of the sidewalk. 'Ah,' he said with a shrug, 'it's a shelter exit,' as if to say—so what's unusual about that."

Documentary Evidence. Gouré also spotted what he thinks are signs of retractable, blastproof doors to station entrances of the 43-mile-long Moscow subway, whose circular, concrete tunnels could house one million people—20% of the city's population. (Leningrad has about eight miles of subway, and the first stage of the Kiev subway has six miles of track.) But mostly, Gouré's evidence for a thoroughly planned Russian civil defense effort is the torrent of pamphlets, charts and decrees issued to the public through DOSAAF (All-Union Voluntary Society for the Promotion of the Army, Aviation and Navy), a 22 million member organization that also gives training in shooting, parachute jumping and other paramilitary sports.

How seriously the Russians take such paper planning is debatable: the newspaper *Sovetskii Patriot* reports that some trainees attended civil defense meetings "with bored expressions and sat next to the exit," while others jolted instructors by arguing, "There is no place to hide from an atomic explosion anyway." But bored or not, by next year DOSAAF members and others will have attended 64 hours of courses, half of them spent in such practical matters as operating shelter equipment, first aid, fallout decontamination procedures. Children between 12 and 16 get similar training in schools.

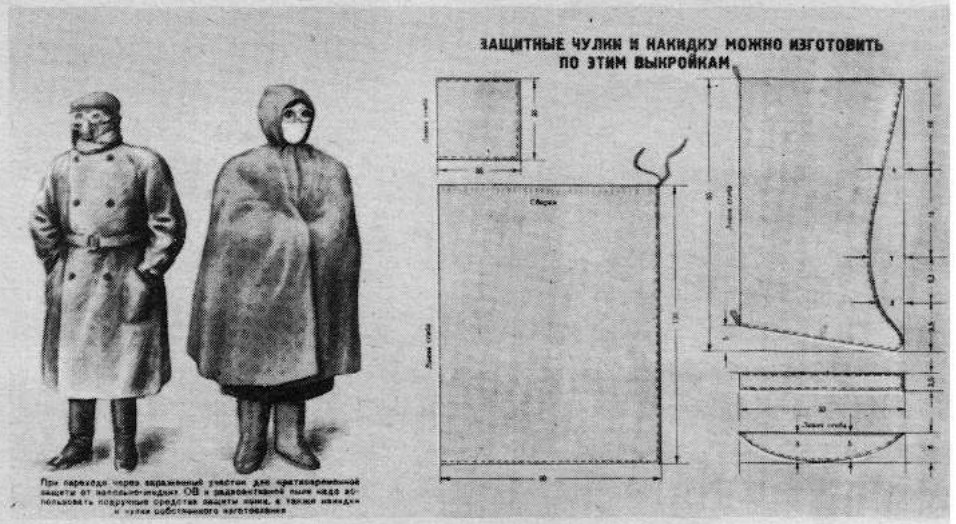
People & Cattle. In contrast to the U.S., reports Gouré, "the great majority of shelters, especially the permanent kind are public." The author does not report

seen; there are few civil defense posters and no air-raid drills in the largest cities.

All this has led many Western observers in Moscow to conclude that Russia has little, if any, civil defense planning. Such a view is sharply questioned in a forthcoming book, *Civil Defense in the Soviet Union*, by Rand Corp. Analyst Leon Gouré.

Unmarked Concrete. Moscow-born Gouré, 39, son of an economist who fled Russia in 1923, joined the U.S. Army as a counterintelligence agent in World War II, has worked as a Russian expert ever since. Last year he spent a month touring nine Soviet cities. Says he: "The Soviets' is not a crash program. It has never been tied to a crisis like ours, so naturally it is not a Number One subject of conversation."

The lack of a crisis atmosphere, plus Russian reliance on the fact that the U.S. will not engage in a surprise attack, thinks



SOVIET FALLOUT SUITS
An eye-opener for Western moles.



My Fellow Americans:

Nuclear weapons and the possibility life we cannot ignore today. I do not any of the problems facing the world not ours alone.

The government is moving to impro you in your communities through civil d will be continuing throughout the next all public buildings with fallout shelter of those with adequate shelter for 50 p viding fallout shelter in new and in som We are stocking these shelters with or supplies and two weeks' water supply f addition, I have recommended to the Co food reserves in centers around the co needed following an attack. Finally, w warning systems which will make it pos ing on buzzers right in your homes and

More comprehensive measures that cannot be brought to completion in th meantime there is much that you can in doing so strengthen your nation.

I urge you to read and consider ser issue of LIFE. The security of our cou world are the objectives of our policy. B when both these objectives are threate eventualities. The ability to survive cou therefore are essential to our country.

CIVILIAN FALLOUT SUIT SEPTEMBER 15 · 1961 · 20¢

Philip J. Dolan, DNA-EM-1

Chapter 14

(Secret): DAMAGE TO MILITARY FIELD EQUIPMENT

INTRODUCTION

One of the primary uses of nuclear weapons would be for the destruction of military field equipment. This chapter describes how

the total impulse is represented by

$$I_T = A\left[B + C\,(W^{1/3})\right],$$

where A is the area of the face of the cube normal to the blast wave, B is the overpressure contribution to the impulse, and C is the dynamic pressure contribution to the impulse. Thus, the contribution to total impulse from overpressure remains constant, while that from dynamic pressure increases as the cube root of the yield. For very low fractional kiloton yields, the loading is highly impulsive with most of the load coming from the overpressure contribution. As the yield increases, at a constant scaled HOB and ground distance, the total impulse also increases, with an increasing portion resulting from the dynamic pressure contribution.

most damage caused to non-shielded targets by higher yield weapons results from the translational effects of dynamic pressure. Since shielding can reduce translational effects substantially, it can be quite effective as a protection from large yield weapons. Damage to shielded targets results largely from overpressure effects, for which damage distances scale as the cube root of the yield ($W^{1/3}$), while damage to unshielded targets results largely from total impulse effects (including those of dynamic pressure), for which damage distances generally scale as $W^{0.4}$. The effects of shielding are illustrated in Figure 14-9, in which damage distances for shielded targets have been scaled as $W^{1/3}$, and those for unshielded targets by $W^{0.4}$.

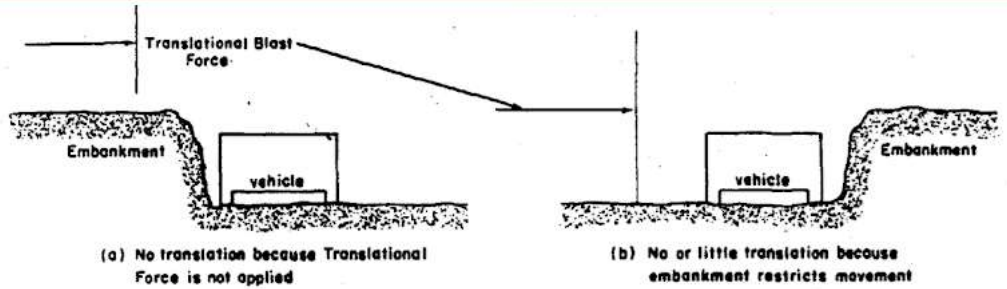


Figure 14-8. The Effect of Shielding

Figure	Equipment
14-13	Wheeled Vehicles,
14-14	Artillery,
14-15	Tracked Vehicles (Except Tanks and Engineer Heavy Equipment),
14-16	Tanks (Light and Heavy),
14-17	Small Arms,
14-18	Generators,
14-19	Locomotives,
14-20	Box Cars,
14-21	Supply Dumps,
14-22	Telephone Poles,
14-23	Water Storage Equipment,
14-24	Shielded Wheeled Vehicles,
14-25	Shielded Engineer Heavy Equipment,
14-26	Signal, Electronic Fire Control Equipment, Antennas, and Rigid Radomes
14-27	Wire Entanglements.

Wheeled Vehicles
- U.S. WW II 1/4-ton truck
- U.S. M-38 1/4-ton truck
- U.S. 2-1/2-ton truck
- U.K. scout car
- U.K. 1/4-ton truck

Artillery
- Towed U.S. 57-mm anti-tank gun
- Towed U.K. 25-pounder gun
- Self-propelled guns

Landing Vehicle, Tracked

Armored Personnel Carrier, M-59

Construction Equipment
- Crawler tractor
- Road grader

Since contents of supply dumps generally are resistant to crushing forces, an overpressure level of 30 psi is recommended for shielded supply dumps. A dynamic pressure of 5 psi is recommended for unshielded supply dumps.

~~$3.95~~
Review copy

Atomic Weapons In Land Combat

By Colonel G. C. Reinhardt and Lt. Col. W. R. Kintner

This new book, written by two experienced soldiers, explores the problem that today confronts all military men—and citizens. How will atomic weapons affect tactics and strategy? What is the meaning on the battlefield of this almost unknown, untried, mighty power? This is the first book to evaluate the new military weapon on tomorrow's battlefield.

The authors show how the atomic weapon challenges military leaders because it is a tool that demands new and exacting skills. Changes as radical as yesteryear's invention of gunpowder face the leaders of today's armies, who must know how to recognize potential atomic targets and must learn how to set up the correct missions to deal with these targets.

Discussed for the first time are such important topics as the atomic weapon and airborne strategy, offensive and defensive tactics when both sides have atomic weapons, protective measures, medical aspects, the new aspects of the logistical problem, the new casualty rate factor, the demands of individual and unit training, plus an appendix with a wealth of definitions, charts, and tables.

Aware of the challenge presented by the new tool of war, the thoughtful military man and student will welcome this opportunity to study this carefully evaluated discussion of what the atomic weapon really means to the armed forces of today.

Foreword by Lt. Gen. Manton S. Eddy, U. S. Army

Illustrated

THE MILITARY SERVICE PUBLISHING CO.
Harrisburg, Pa.

ABOUT THE AUTHORS

The authors—Colonel G. C. Reinhardt, Corps of Engineers, and Lieutenant Colonel W. R. Kintner, Infantry, U. S. Army—bring to ATOMIC WEAPONS IN LAND COMBAT years of unusual opportunity to study the new weapons. Both recently were instructors in atomic weapons at the Command and General Staff College, Fort Leavenworth, Kansas.

Colonel Reinhardt was commissioned in the Regular Army in 1924 after graduation from Massachusetts Institute of Technology. After service in World War II, he graduated from the Industrial College of the Armed Forces in 1949. He is now on duty with the staff and faculty of The Engineer School, Fort Belvoir, Virginia.

Colonel Kintner, upon graduation from the U. S. Military Academy in 1940, was originally commissioned in the Coast Artillery Corps, later transferring to the Infantry. He is a 1945 graduate of the Command and General Staff School and holds an MA for post-graduate study at Georgetown University in 1948. He is at present serving in Korea.

Their special opportunities to study the problems involved in the use of atomic weapons have enabled these Army officers to produce a book that will stimulate the military student and yet can readily be understood by the field soldier.

You don't need a degree in physics or clearance for high security classification to understand the authors' frank discussion of what atomic weapons can do—to you, and to the enemy.

THE MILI







Below: tank 500 yards from



Above: **two** radiac meters (handheld AN/T1B ion chamber survey meter and AN/PDR-27 Geiger Set on sling)



In 1951, J. R. Oppenheimer and others studied the uses of tactical nuclear weapons to halt the aggressive invasions that triggered both world wars in Project Vista (classified Secret)

Congressional Record

PROCEEDINGS AND DEBATES OF THE 85th CONGRESS, SECOND SESSION

United States Military and Diplomatic Policies—Preparing for the Gap

SPEECH

OF

HON. JOHN F. KENNEDY

OF MASSACHUSETTS

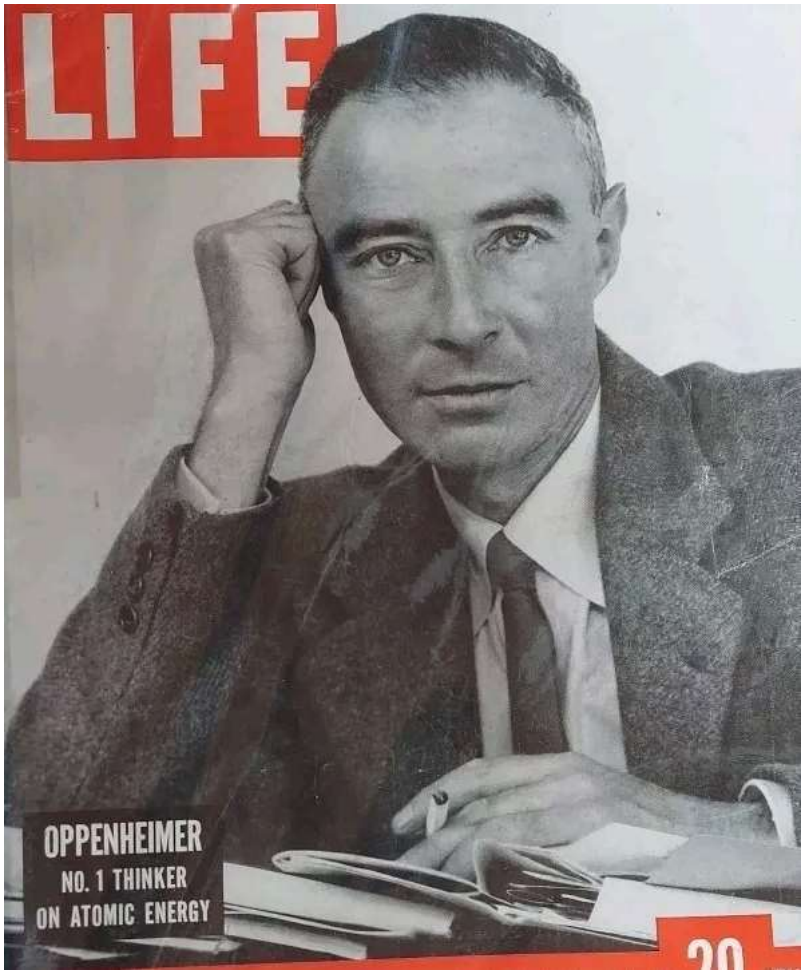
IN THE SENATE OF THE UNITED STATES

Thursday, August 14, 1958

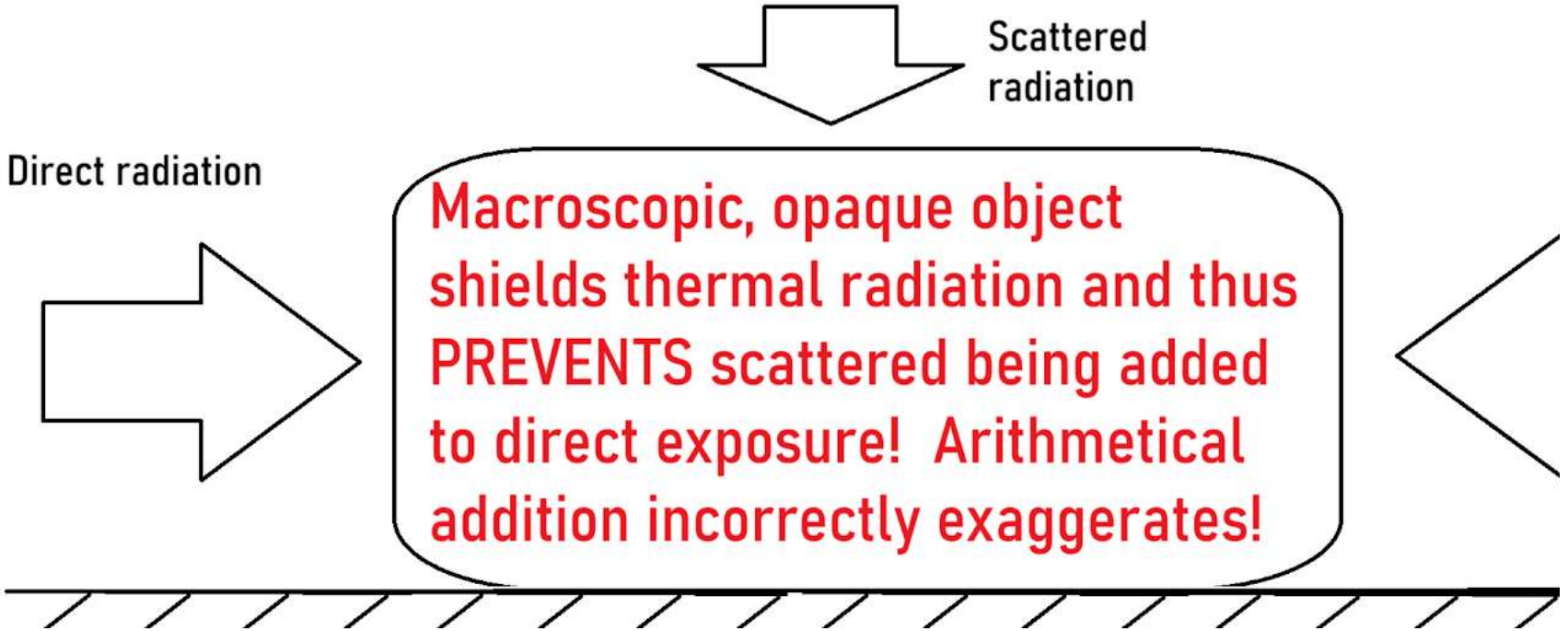
The time has come for the United States to consider a similar change, if we, too, are to depend on something more than deep convictions and pious motives to guide the state aright. For we, too, are about to lose the power foundation that has long stood behind

In the years of the gap, the Soviets may be expected to use their superior striking ability to achieve their objectives in ways which may not require launching an actual attack. Their missile power will be the shield from behind which they will slowly, but surely, advance—through sputnik diplomacy, limited brushfire wars, indirect nonovert aggression, intimidation and subversion, internal revolution, increased prestige or in-

fluence, and the vicious blackmail of our allies. The periphery of the free world will slowly be nibbled away. The balance of power will gradually shift against us. The key areas vital to our security will gradually undergo Soviet infiltration and domination. Each such Soviet move will weaken the West; but none will seem sufficiently significant by itself to justify our initiating a nuclear war which might destroy us.


LIFE
OPPENHEIMER
NO. 1 THINKER
ON ATOMIC ENERGY
20

The scattered radiation delusion: you cannot add up direct and scattered radiation contributions for an opaque macroscopic o an imaginary mathematical "point in space"), due to SELF-SHIE



110 kilotons Koon, 1.76 miles: 15 megaton Bravo, 1

110 kiloton Castle-Koon surface burst Bikini Atoll: no fire in pisonia forests on Uncle Island, 9300 ft (1.76 statute miles) from ground zero
Fig. 3.8 in secret weapon test report WT-921

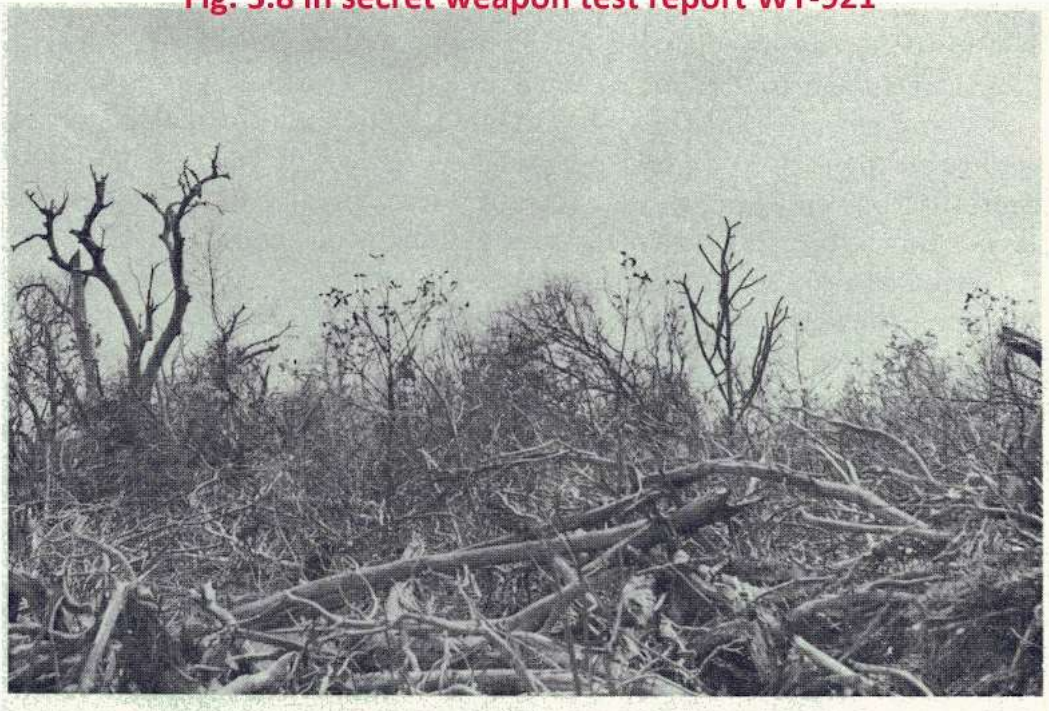


Figure 6.24a. Forest stand after a nuclear explosion, B damage (3.8 psi overpressure).

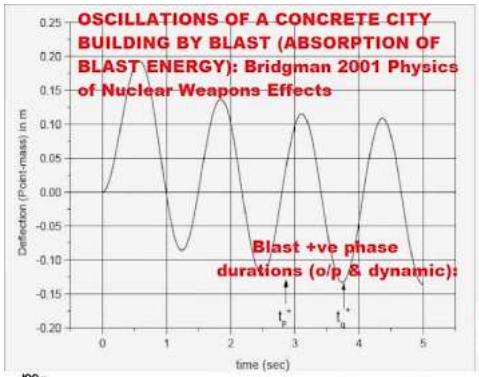
Glasstone 1957 "Effects of Nuclear Weapons" page 240 (deleted from all future editions!). Secret source: WL Fons and TG Storey, Op. Castle, Project 3.3, Blast Effects on Tree Stands, 1955, WT-921.

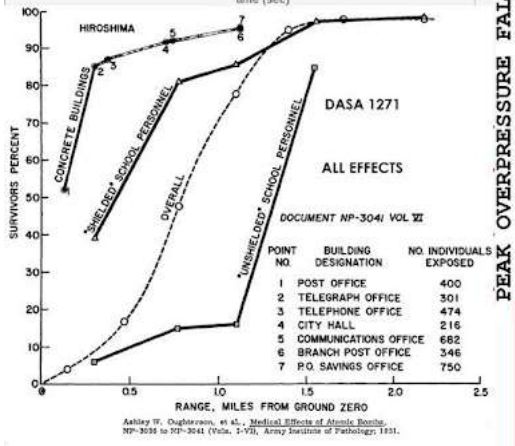


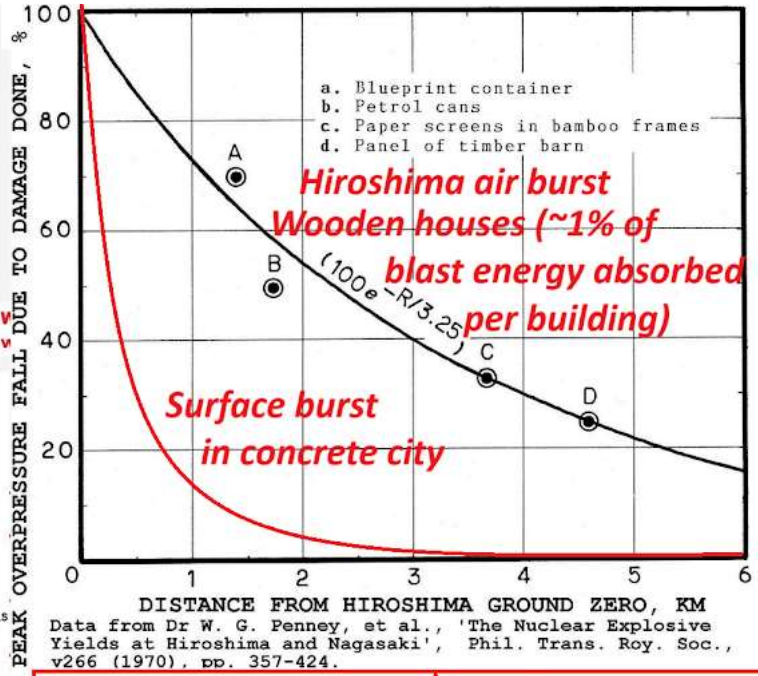
Figure 6.24b. Forest stand after a nuclear overpressure).

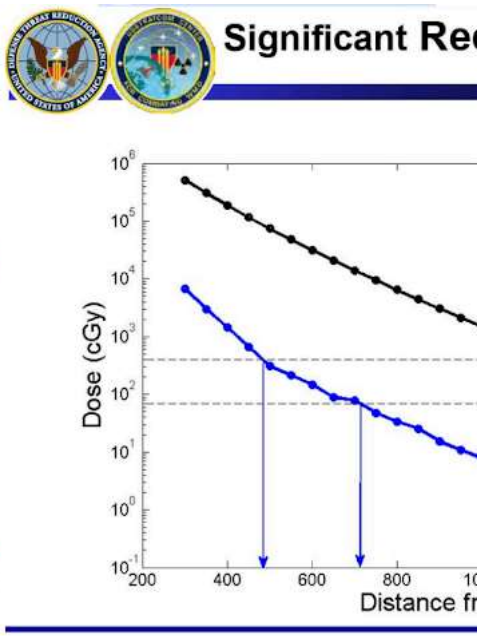
Glasstone 1957 "Effects of Nuclear We from all further editions!). Secret sou WT-921, Fig. 3.2, Victor Island pisonia

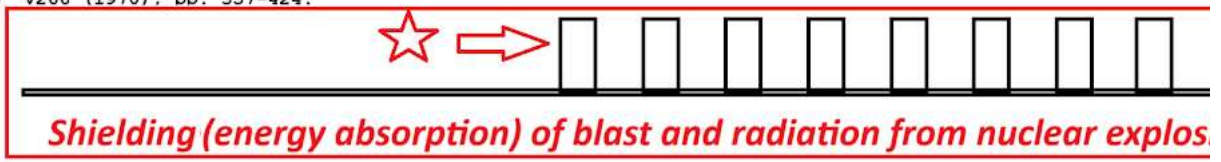
NOTE: the declassified AFSWP film "Military Effects Studies on Operation Castle" includes extra photos (inclu

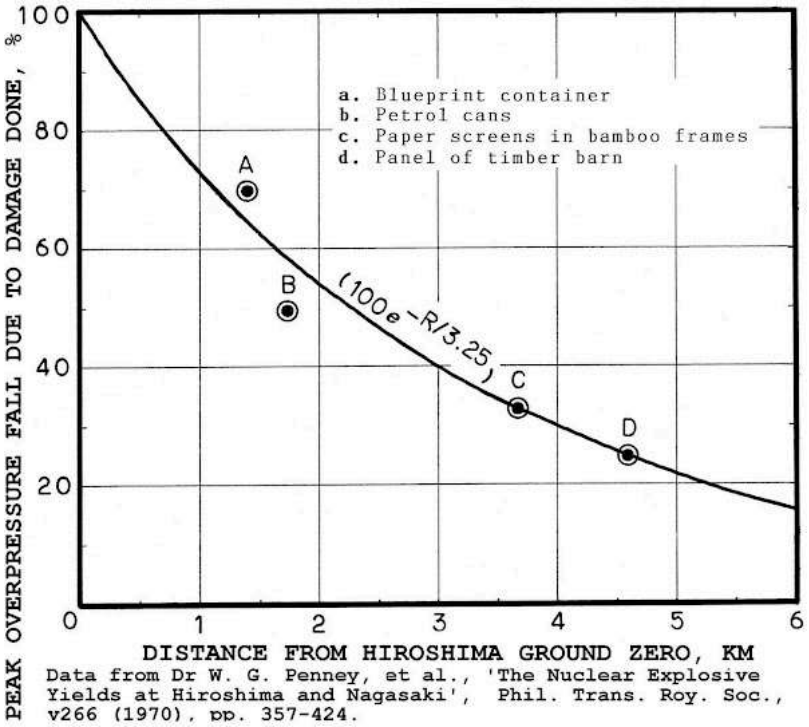

OSCILLATIONS OF A CONCRETE CITY BUILDING BY BLAST (ABSORPTION OF BLAST ENERGY): Bridgman 2001 Physics of Nuclear Weapons Effects
Blast +ve phase durations (o/p & dynamic):
Deflection (Point-mass) in m
time (sec)


HIROSHIMA
DASA 1271
ALL EFFECTS
DOCUMENT NP-3041 VOL VI
CONCRETE BUILDINGS
"SHIELDED" SCHOOL PERSONNEL
"UNSHIELDED" SCHOOL PERSONNEL
OVERALL
SURVIVORS PERCENT
RANGE, MILES FROM GROUND ZERO
POINT NO. | BUILDING DESIGNATION | NO. INDIVIDUALS EXPOSED
1 POST OFFICE 400
2 TELEGRAPH OFFICE 301
3 TELEPHONE OFFICE 474
4 CITY HALL 216
5 COMMUNICATIONS OFFICE 682
6 BRANCH POST OFFICE 346
7 P.O. SAVINGS OFFICE 750
Ashley W. Oughterson, et al., Medical Effects of Atomic Bombs, NP-3038 to NP-3041 (Vols. I-VII), Army Institute of Pathology, 1951.


a. Blueprint container
b. Petrol cans
c. Paper screens in bamboo frames
d. Panel of timber barn
A
B
C
D
Hiroshima air burst
Wooden houses (~1% of blast energy absorbed per building)
(100e−R/3.25)
Surface burst in concrete city
PEAK OVERPRESSURE FALL DUE TO DAMAGE DONE, %
DISTANCE FROM HIROSHIMA GROUND ZERO, KM
Data from Dr W. G. Penney, et al., 'The Nuclear Explosive Yields at Hiroshima and Nagasaki', Phil. Trans. Roy. Soc., v266 (1970), pp. 357-424.


Significant Re
Dose (cGy)
Distance fr


Shielding (energy absorption) of blast and radiation from nuclear explos



"Who in Europe does not know that one more war in the West and the civilisation of the ages will fall with as great a shock as that of Rome? ... all gas experts are agreed that it would be impossible to devise means to protect the civil population from this form of attack [gas attacks]."

- Professor Philip Noel-Baker, "Foreign Affairs and How They Affect Us", BBC Radio, February 1927 (false claim, repudiated in secret discussions by UK Government Chemical Warfare Research Department, but not in public, thus enabling this form of "pacifist" lying to be used by Nazis to engineer appeasement leading to World War II; see also p31 of T. H. O'Brien's appalling UK official WWII history "Civil Defence" which dumbly mentions this episode without following up the implications for fascist appeasement!) - see https://archive.org/details/HistoryOfTheSecondWorldWarCivilSeriesCivilDefence/mode/1up?view=theater

"Any use of nuclear weapons will escalate into a general war. There is no defence against such weapons ... nuclear warfare will destroy civilsation, and perhaps exterminate mankind. To hope for salvation from Civil Defence is a dangerous self-deluding pipe dream."

- Lord Noel-Baker (yes, the same liar quoted above, whose BBC radio show propaganda in February 1927 helped the Nazis kill 40 million people, unopposed by UK government secrecy obsessed "expert" thugs who refused to say anything in response to tell the public the facts they had that debunked Noel-Baker!), The Times, 25 January 1980. (Thus, the same anti-civil defence "pacifists" who laid the seeds for WWII in 1927 were at it in 1980, simply changing "gas" to "nuclear"!)



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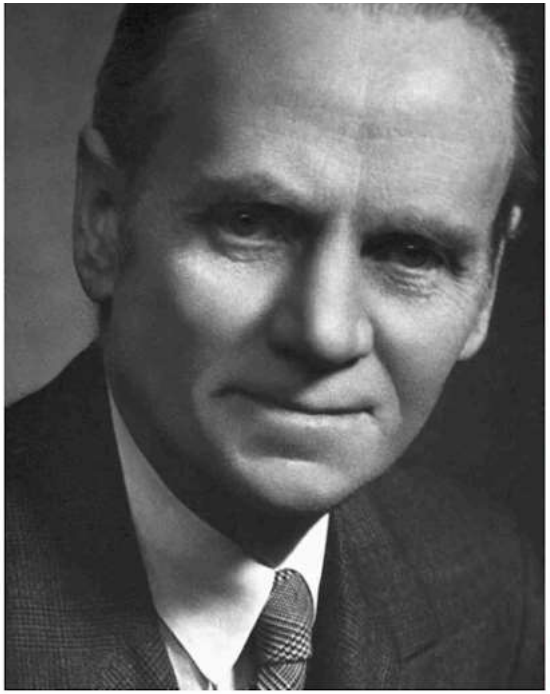
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Nobel Peace Prize winning liars Lord

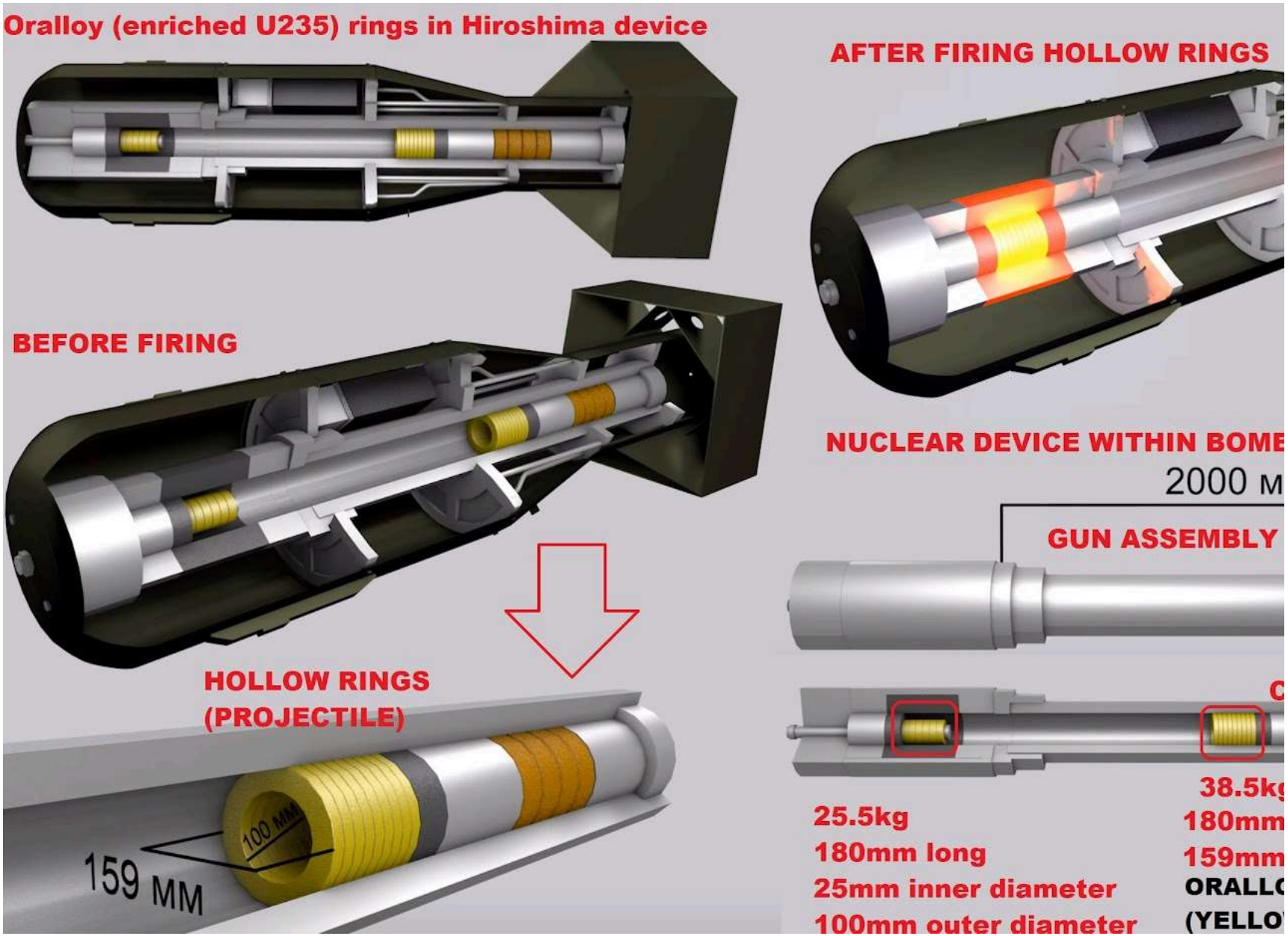


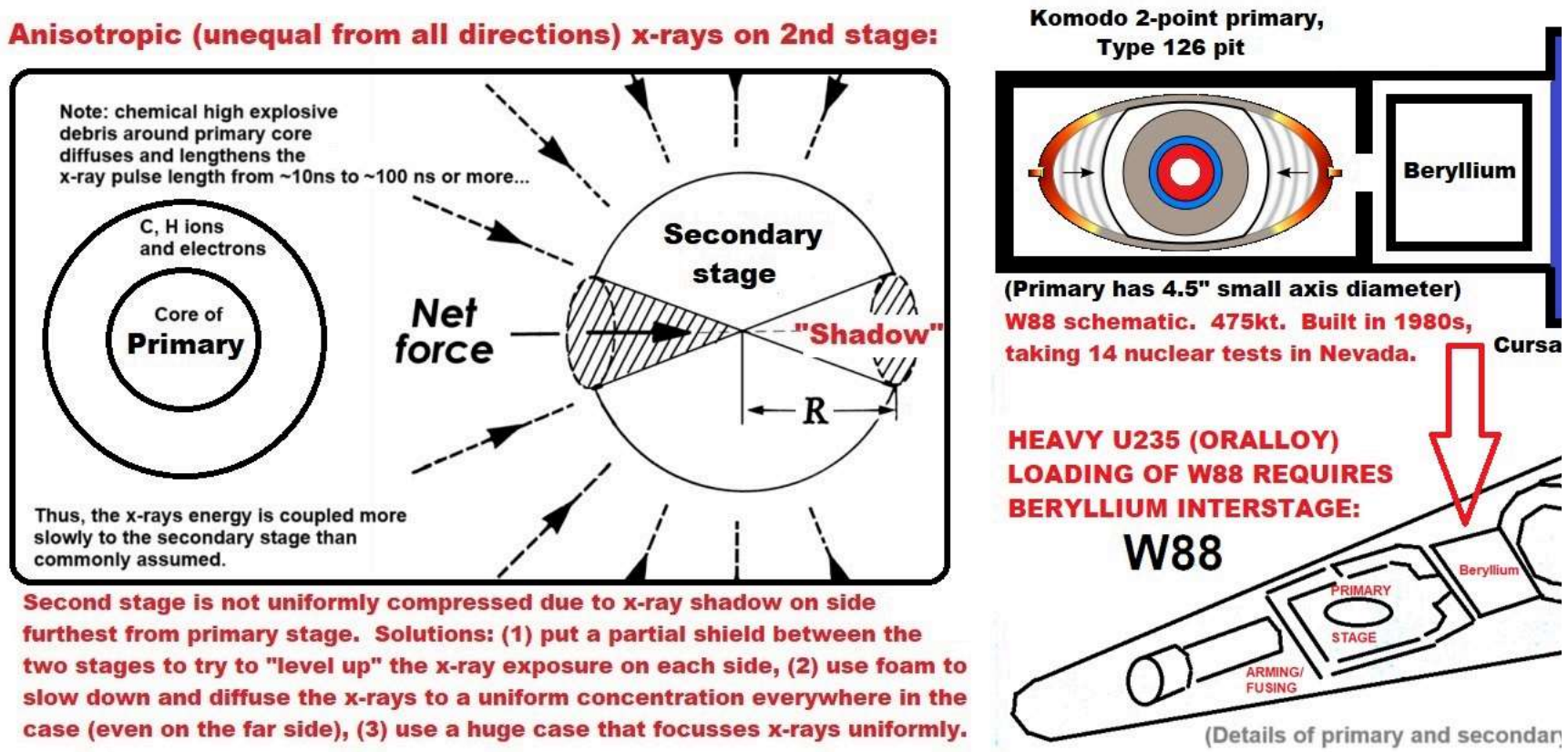
"Mr. Churchill and Sir Norman Angell... the most c comment that I have heard on the whole lunatic b

Philip Noel-Baker and Sir Norman Angell. Both relied on anti-civil defence lying to help the Nazis start WWII. Both got away with it because they were "Idealists" (so were Hitler & Stalin)



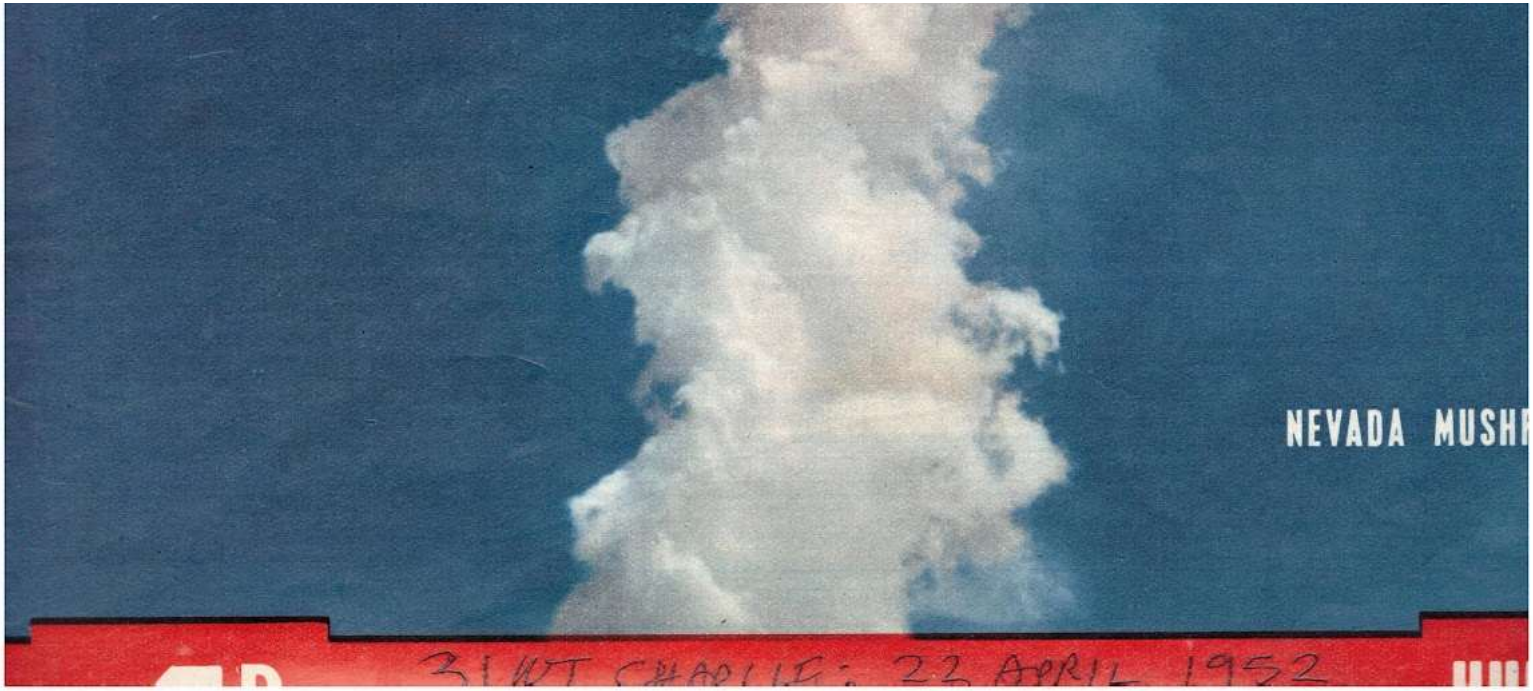
was made at a meeting which I attended as an undergraduate at Oxford in the year before the wa meeting was addressed by a Cabinet Minister. "Th said, "just one way in which you can make your co secure and have peace, and that is to be so much s than any prospective enemy that he dare not attac this is, I submit to you, gentlemen, a self-evident proposition." A small man got up at the back of th asked him whether the advice he had just given wa advice he would give to Germany. ... Our Cabinet M tells us in the profundity of his wisdom, that both v secure, both will keep the peace when each is stron the other. And this, he thinks, is a self-evident prop This time there was loud applause. It remains to ad the Cabinet Minister was Winston Churchill, his qu Sir Norman Angell." - Prof. Cyril Joad, "Why War?" p71. Angell won the 1933 Nobel Peace Prize for his populist anti-deterrence war-mongering "Great Illu


Oralloy (enriched U235) rings in Hiroshima device
AFTER FIRING HOLLOW RINGS
BEFORE FIRING
NUCLEAR DEVICE WITHIN BOME
2000 M
GUN ASSEMBLY
HOLLOW RINGS
(PROJECTILE)
159 MM
100 MM
25.5kg
180mm long
25mm inner diameter
100mm outer diameter
38.5kg
180mm
159mm
ORALLO
(YELLO



ABOVE: the 11 October 1952 cover of *Picture Post* showed clearly the "separation of effects" in an air burst (31 kiloton air burst at 3,440 ft, the Charlie shot of 22 April 1952, Nevada test site), where the fireball cools and forms into toroidal shape (with the radioactivity in the ring) before the "stem" of popcorned dust from the desert is sucked through the middle, before cascading harmlessly around the periphery without mixing with the fission products in the toroidal ring. Despite the visual proof that intense radioactive fallout can be avoided by air bursts, anti-nuclear propaganda helped by Russian fronts continued to raise fallout fears to promote Western arms control and disarmament, leaving the field clear for undeterred Russian conventional invasions and wars.


PICTURE
POST



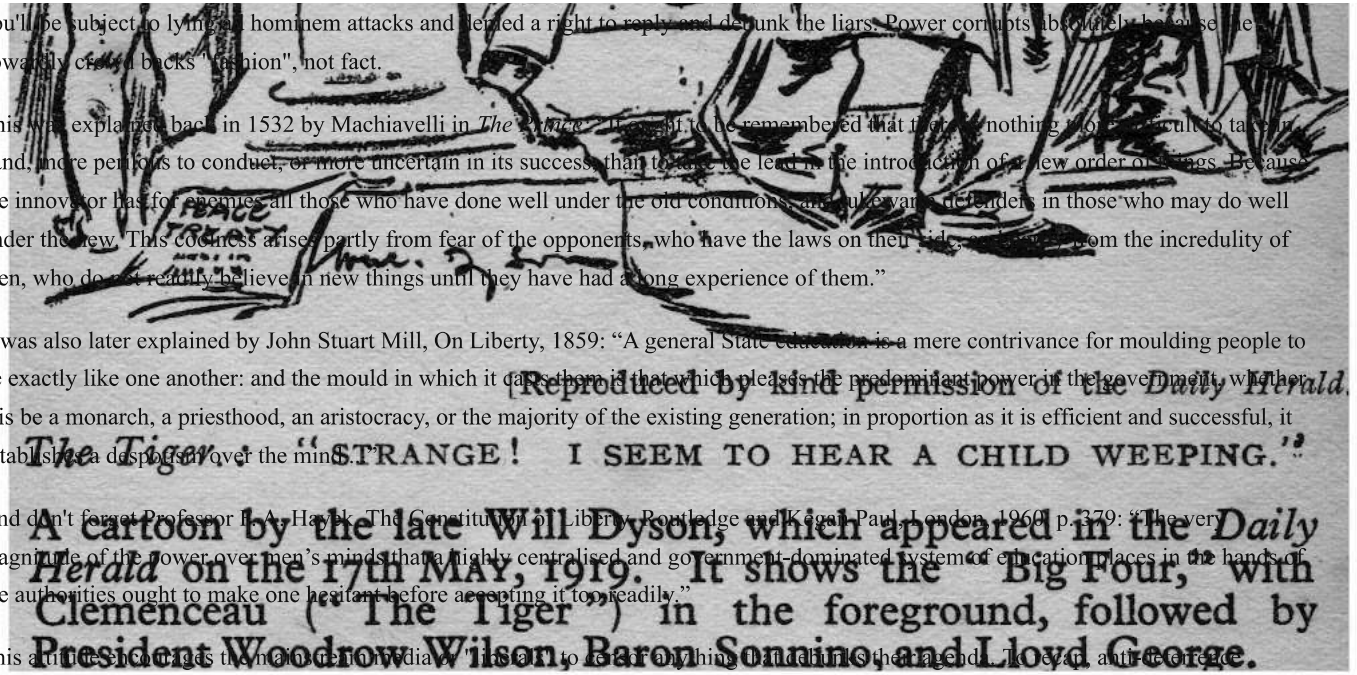
ABOVE: as Herman Kahn predicted in his 1960 *On Thermonuclear War*, the paranoid anti-arms race groupthink mob insanity of "disarmament and arms control" public coercion after the first World War was not a fluke, but instead was a standard human reaction to the end of a war. It sowed the seeds of another war! Similarly, after Cold War 1.0 ended in 1991, opposition to disarmament and arms control virtually disappeared, so enhanced neutron tactical nuclear weapons (which deterred the kind of invasions and conventional warfare that led to both World Wars, including nuclear weapons use twice in the second one), were removed unilaterally by the West, allowing Russian aggression to trigger Cold War 2.0. This is basically a repetition of the way fake "pacifist" disarmament propaganda lying by Lord Noel-Baker (who in a BBC radio broadcast in Feb 1927 first claimed that there was no defense against gas WMD except disarmament) and Sir Norman Angell (who had been at it since 1908 with his "Great Illusion" anti-deterrence book, see his pre-WWI argument with Churchill reported by Professor Cyril Joad in the latter's 1939 book "Why War?"), engineered disaster via *populist weapons effects lying, "knockout blow" deceptions, and lying denials of civil defense effectiveness to negate threats (all the lessons of these lies have NOT been learned, and people like Lord Noel-Baker, who lied about gas knockout blows on BBC radio in February 1927, were still doing exactly the same thing with nuclear weapons fallout lies in 1980 in response to "Protect and Survive"!)*.

You won't find any objective analysis of this in any "history book", all of which follow left wing Marxism propaganda or the anti-nuclear biased CND bigot AJP Taylor, in denying the facts using a data-dump of horseshit propaganda to bury the truth. In reality, as the cartoon published in the 17 May 1919 Daily Herald by Will Dyson shows, people did predict another war by 1940 as a result of the 1919 "peace deal" by Clemenceau, Lloyd George, Woodrow Wilson and Baron Sonnino. But most people prefer to believe lies, a fact shown clearly by an unbiased view of history, or even by an unbiased view of "superstring theory" in physics. But don't dare to stand up for truth, because


1910 CLASS

you'll be subject to lying ad hominem attacks and denied a right to reply and debunk the liars. Power corrupts absolutely because the cowardly crowd backs "fashion", not fact.

This was explained back in 1532 by Machiavelli in *The Prince*: "It ought to be remembered that there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new. This coolness arises partly from fear of the opponents, who have the laws on their side, and partly from the incredulity of men, who do not really believe in new things until they have had a long experience of them."



It was also later explained by John Stuart Mill, On Liberty, 1859: "A general State education is a mere contrivance for moulding people to be exactly like one another: and the mould in which it casts them is that which pleases the predominant power in the government, whether this be a monarch, a priesthood, an aristocracy, or the majority of the existing generation; in proportion as it is efficient and successful, it establishes a despotism over the mind."

And don't forget Professor F. A. Hayek, The Constitution of Liberty, Routledge and Kegan Paul, London, 1960, p. 379: "The very magnitude of the power over men's minds that a highly centralised and government-dominated system of education places in the hands of the authorities ought to make one hesitant before accepting it too readily."

This attitude encourages the mainstream media to "censor" anything that defends their agenda. To evade anti-freedom

propaganda from bigoted liars is the orthodoxy, and infects nuclear weapons discussions, deterrence discussions, and the entire "arms control and disarmament" movement with crap. Mainstream media would shut down the internet to "protect" people from potential "error". It's all Stalinist censorship, made plain by Orwell's book *1984*, but ignored as "taboo" by thug censors masquerading as "liberals".

Kahn made the following point about disarmament and arms control: reducing nuclear stockpiles and unilaterally eliminating Type II Deterrence (i.e. deterrence of the provocations that cause war, e.g., disarming in 1992 the West's W79 neutron bombs to deter the invasions that set off both World Wars) doesn't make you safer, because it increases the risk of war as proved by history. Reducing the risk of an "accidental" nuclear war is best done using ABM, civil defense, plus safeguards inside nuclear weapons, than by disarmanent which increases the risk of war by reducing credible deterrence of war. The idea that unilateral disarmament protects you is like saying that nuclear-unarmed Hiroshima and Nagasaki were safe from nuclear attack in August 1945 because they were so-called "Nuclear Free Zones"! Similarly, the fact the world was non-nuclear in 1939 didn't stop nuclear weapons being manufactured and used to end that war! All of the CND arguments are fake news, just as all the arguments by Angell in 1908 against deterrence were fake news. Fakes news sells - as proved by the sale of fairy tales and "fiction". Even if you don't like particular uses or yields of nuclear weapons, there is a choice of tailored nuclear warhead yields and designs, and types of employment to produce different effects, with widely variable cleanliness, neutron output, EMP output, and the separation of heat, blast and fallout effects in air and subsurface bursts, to deter invasions without the collateral damage that accompanies conventional warfare.

UCRL-JC-117385
PREPRINT

Achieving Competitive Excellence in Nuclear Energy: The Threat of Proliferation; The Challenge of Inertial Confinement Fusion

John H. Nuckolls

This paper was prepared for presentation at the
American Nuclear Society Annual Meeting
New Orleans, Louisiana
June 20, 1994

In the late 1950s and early 1960s an inertial confinement approach to controlled fusion energy was explored at LLNL. In 1957 I was assigned the task of designing a fusion power plant driven by the explosion of a series of hydrogen bombs in a giant steam-filled hole in granite. Although this approach would eliminate the magnetic confinement system, the scale is very large, and the hydrogen bomb is initiated by a fission explosive. To eliminate the use of fission explosives and to greatly reduce the scale, I addressed two key questions:

- What is the smallest possible fusion explosion?
- How can such a small fusion explosion be ignited without a fission explosion?

The feasibility of very small fusion explosions follows from the fact that the thermonuclear burn rate is proportional to the density of the fusion fuel, and the fact that fusion fuels can be imploded to at least 1000 times normal density. The inertial confinement time is proportional to the characteristic dimension of the exploding system. Therefore, for a sphere, a thousand–fold increase in the density (and burn rate) makes possible a thousand–fold

A milligram of DT imploded to a thousand tim
and ignited will achieve a 25% burn efficiency a

Only 10^4 J is required to compress 1 mg of DT t
is isentropically compressed to a Fermi degene
thermal energy of the compressed DT must be
energy, which is several hundred electron volts
energy release from this milligram of DT is alr
10^4 J, so that the compression is energetically "

The minimum ignition energy is also much sr
If the entire milligram–mass pellet at 200 g/cm
ignition temperature, then the resulting fusion
times larger than the ignition energy. Howeve
needs to be ignited, since the radius of the com
larger than the range of the 3.5–MeV α particle
If $(1/6)^3$ ($\equiv$0.5%) of the pellet mass is heated to
spot will then initiate a burn wave which ignit
For this pellet, the minimum required ignition
compression, the ignition is also energetically "

The sum of the minimum energies required to
pellet is 15×10^3 J, almost 10^{-4} of the roughly 10^8

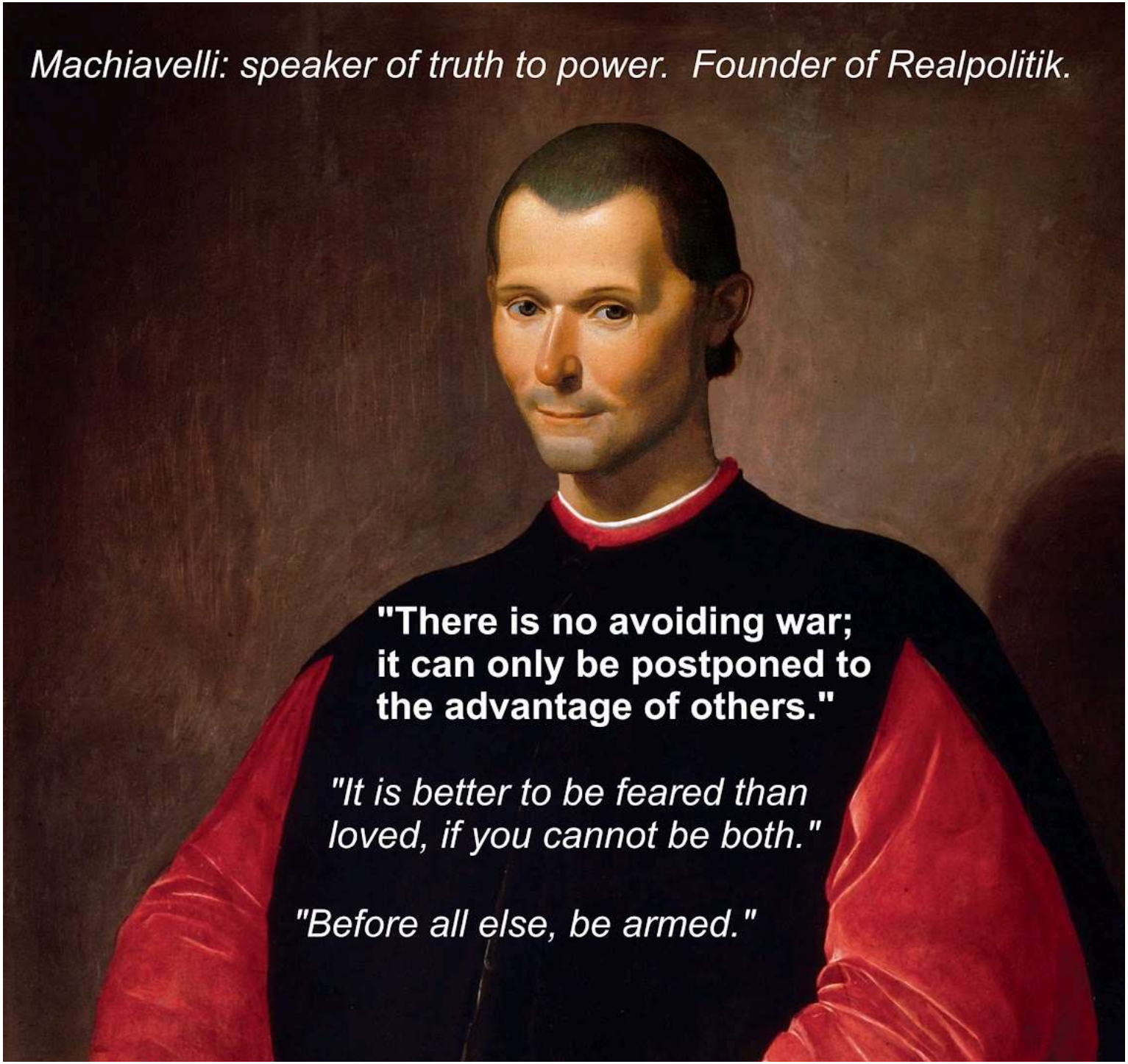
Because the fusion energy is so much larger th
required for compression and ignition, an abla
typically 10% efficient) may be used to achieve
ignition. However, because the velocity requir
milligram) is roughly three times the velocity r
fold, the overall efficiency is reduced to 1%. Th
deliver 10^6 J to the target, and the efficiency of
more than 10% for civil power applications.

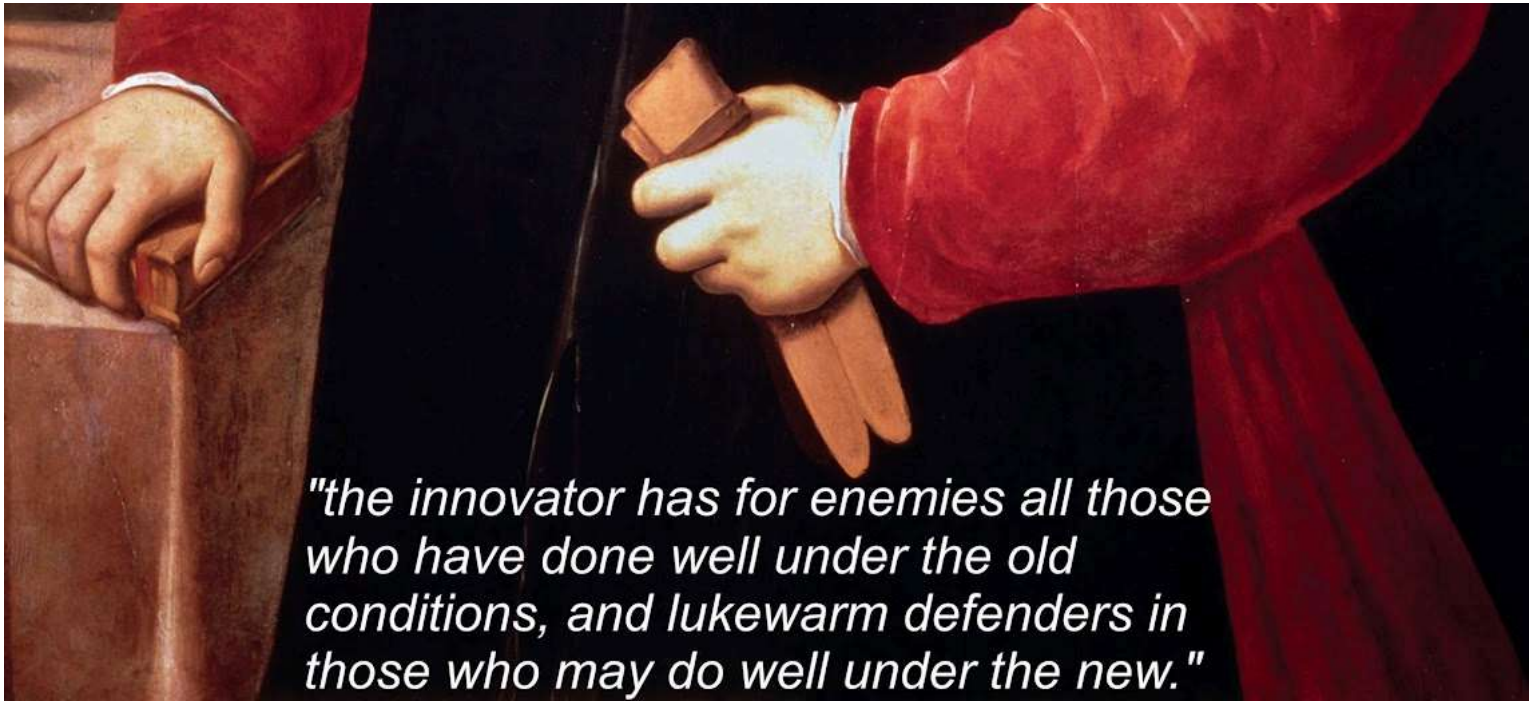
To meet these coupling requirements with the
proposed in the late 1950s to adapt a powerful
invented by Edward Teller in the early 1950s.
the ablative implosion with thermal x-rays gen
energy from the driver beam into a cavity whic
contains a DT pellet coated with a low-Z ablato
rays back and forth across the cavity rapidly rec
and rapid ablation of the pellet surface by the x-
implosion pressures while reducing the rate of
To prevent excessive thermal losses into the ca

reduction in the radius and a 10^6–fold reduction in the mass and fusion yield. Minimum–size fusion explosions can be achieved by imploding DT, the fastest–burning fuel, to very high densities.

scaling of the surface to volume ratio as the cav
decreased the cavity temperature and the avera
imploding capsule.

ABOVE: Kahn was treated with the "shoot the messenger" reaction against Machiavelli, merely for speaking truth to power in 1960: "If the above deterrents are to work reliably, there must always be in the background the knowledge that if they did not, other kinds of deterrents or corrections would come in. It could be disastrous to have a conspicuous gap in the spectrum of deterrents and capabilities. For example, when President Eisenhower remarked at a press conference that it was unthinkable that he would call out federal troops to enforce federal law in the Southern states, some Southerners immediately did something to make it thinkable. Something similar may happen if he convinces the Soviets that he means what he says when he says that "war is preposterous." I suspect that many in the West are guilty of the worst kind of wishful thinking when, in discussing deterrence, they identify the unpleasant with the impossible. It is particularly hard to understand why this is so when almost all who write on this subject were adults during the later part of the Hitler era and presumably were educated in some of the ways in which all these types of deterrence can be strained." - Herman Kahn, *On Thermonuclear War*, page 286. Will the left ever learn facts from history?


Machiavelli: speaker of truth to power. Founder of Realpolitik.
"There is no avoiding war; it can only be postponed to the advantage of others."
"It is better to be feared than loved, if you cannot be both."
"Before all else, be armed."


"the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new."

~~Secret~~

TIER 10/6

Intelligence Memorandum

Office of Transnational Issues — *30 August 2000*

Evidence of Russian Development of New Subkiloton Nuclear Warheads

(b) (1)
(b) (3)

CIA OTI IM 2000-011 X

public statements by Russian scientists and officials since 1993 indicate that the last nuclear warhead designed during the Soviet era was a device tailored for enhanced output of high-energy X-rays with a total yield of only 300 tons.

Judging from Russian writings since 1993 and Moscow's evolving nuclear doctrine, new roles are emerging for very-low-yield nuclear weapons—including weapons with tailored radiation output—and there are powerful advocates for development of such weapons in the country's military and weapons community. The Moscow press claimed that a draft presidential edict from Yel'tsin called for "development of new-generation nuclear weapons."

APPROVED FOR RELEASE
DATE: OCT 2005

- Recent statements on Russia's evolving nuclear weapons doctrine lower the threshold for first use of nuclear weapons and blur the boundary between nuclear and conventional warfare. Very-low-yield nuclear weapons reportedly could be used to head off a major conflict and avoid a full-scale nuclear war.

- Senior Russian military officers have advocated yield nuclear weapons in Russian military journ *Armeyskiy Sbornik*. Deputy Commander in Ch Muravyev stated that to have an effective impa strategic missile systems should be capable of c spectrum of ranges with minimal ecological con with low-yield nuclear weapons.

Soviet Era Development of Tailored -

Russian development of nuclear devices tailore output began during the Soviet period when "cl reduced contamination from fission products—v explosions (PNE's), according to statements by in effect the first enhanced-radiation devices pro tailored-output devices developed later for both which involved the same scientists (see appendi

Enhanced-radiation weapons are designed to inc neutron, X-ray, or electromagnetic pulse effects fireball effects. Clean PNE devices are designed products by maximing the fraction of the total yi objectives are achieved by similar design approa

Having first developed tailored-output devices fo to investigate the possible weapons effects result Russian scientists acknowlege that tests were cor effects of a US neutron bomb on Soviet naval ele

Alexander Shcherbina, a scientist from the Chely laboratory, told the Russian press in the mid-199 subkiloton device tailored for high output of hard planned for 1990 and would have been the culmi

Source: https://www.cia.gov/readingroom/docs/DOC_0001260463.pdf

(b) (3)

~~Secret~~

Intelligence Report

Office of Russian and European Analysis *22 Jun*

Russia:

Recent press commentary also suggests that Moscow has rekindled plans to develop new warheads for the Ground Forces. A number of articles suggest that Russia is developing low-yield warheads with enhanced radiation that could be used on high-precision nonstrategic weapon systems

Segodnya, claimed that some Russian off were advocating a radical modernization Russia's nuclear arsenal, including the cr of up to 10,000 new low-yield and super- yield tactical nuclear warheads as a count NATO expansion.





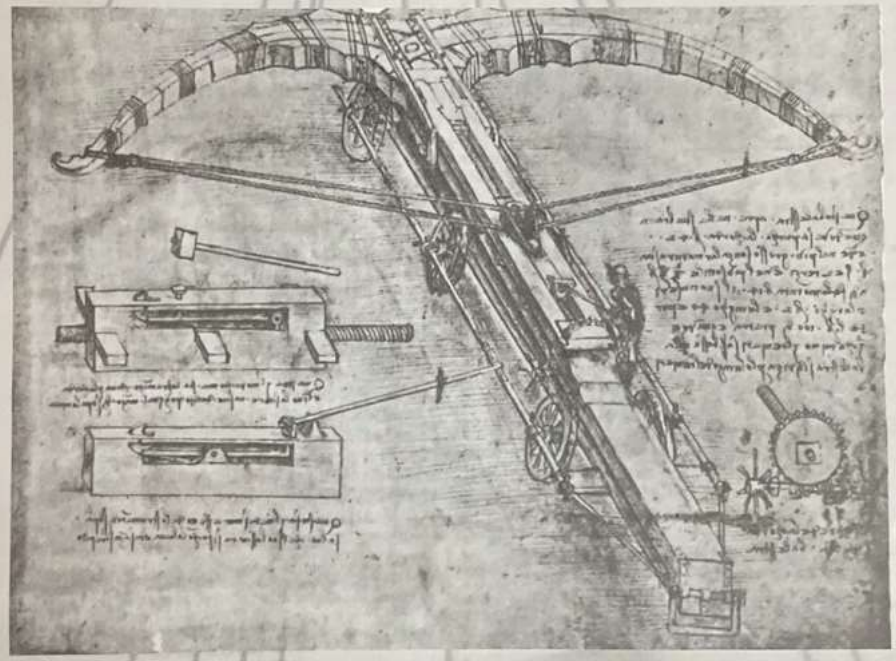
ABOVE: Ben Neta
design of the Irani
implosion nuclear
compared to Israe
implosion nuclear
left, courtesy of M
the Israeli reactor
1986). Compressi
neutron reflector

PEACE MATTERS

science matters

understanding conflict
informal education
child soldiers

PRICE 80 p



science & war
old relationship
deadlier by the day

No 17 Spring 1997 ISSN 1350 – 3006

child soldiers

MORE AND MORE of the world is being sucked into a desolate moral vacuum. This is a space devoid of the most basic human values; a space in which children are slaughtered, raped, and maimed; a space in which children are exploited as soldiers; a space in which children are starved and exposed to extreme brutality.' writes Graca Machel in the introduction to ***The Impact of Armed Conflict on Children*** The report, the result of a two years research and consultation was submitted to the United Nations general Assembly at the end of last year.

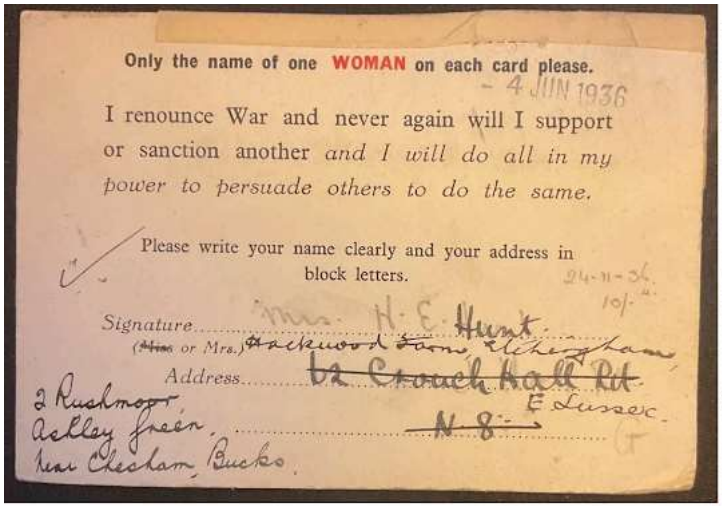
The report reveals the full extent of children's involvement in the 30 or so armed conflicts raging around the world. Millions of children are caught up in conflicts in which they are not merely bystanders, but targets. Some fall victim to a general slaughter against civilians; others die part of a calculated genocide. Still others suffer the effects of sexual violence or the multiple deprivations of armed conflict that expose them to danger or disease. Worse still perhaps, thousands of young people are actually exploited as combatants.

The use of child soldiers is hardly new. Children have served armies in fighting roles as cooks, porters, messengers and spies. Increasingly, however, children are deliberately recruited as soldiers. It is estimated that there are over a quarter of a million children, some as young as 8, serving in government armies and opposition groups. Generally however, child soldiers are largely invisible, as governments



Never too young: a Revolutionary guard, with a rose on her rifle, watches a demonstration in Iran

While industrialised states look to computer power and robotics to provide the 'perfect' fighting machine at a more basic level children offer 'ready-made, dispensable weapons platforms' to the mind detached from humanity. The proliferation of light weapons has made it easier to make use of children as combatants. Assault rifles are cheap and widely available, thanks to the international arms trade. In Uganda, an AK-7 can be bought for the cost of a chicken. Previously,



Only the name of one WOMAN on each card please.

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I renounce War and never again will I support or sanction another *and I will do all in my power to persuade others to do the same.*

Please write your name clearly and your address in block letters.

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10/-

Signature Mrs. H. E. Hunt

(~~Miss~~ or Mrs.) ~~Hackwood Farm, Etchingham,~~

Address ~~62 Crouch Hall Rd N.8.~~ E Sussex.

2 Rushmoor
Ashley Green
near Chesham, Bucks.



HUNT, H.E. Mrs.
Hackwood Farm,
Etchingham,
East Sussex.

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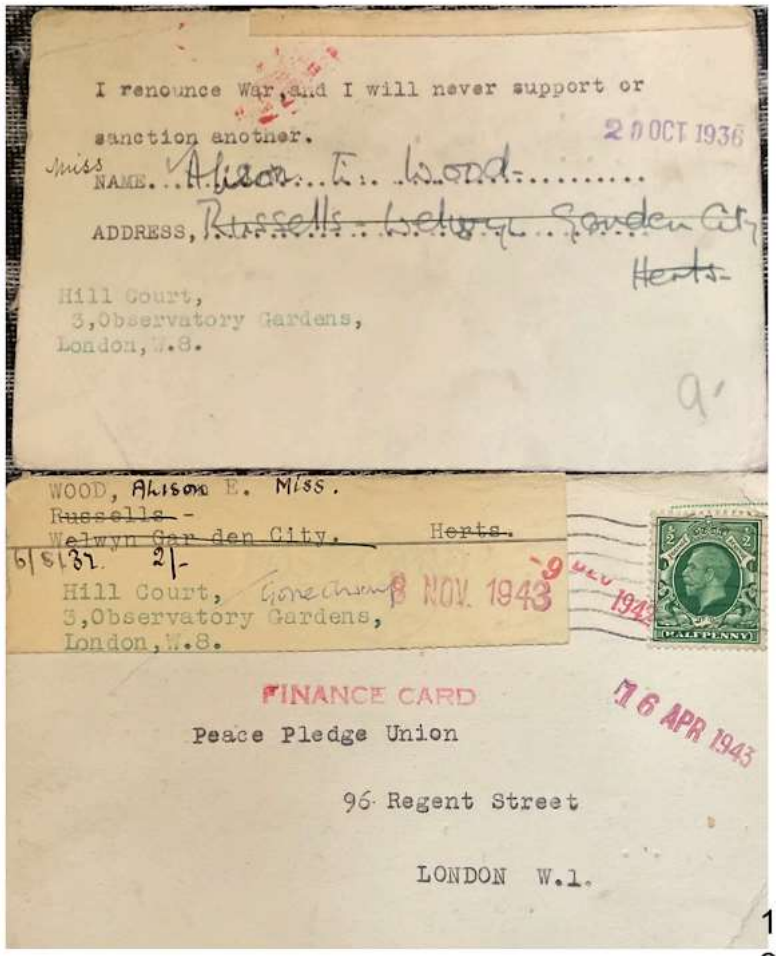
8 OCT 1946 12 NOV 1946

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Hersham Road,
Walton-on-Thames.



I renounce War, and I will never support or sanction another.

20 OCT 1936

Miss NAME. Alison E. Wood

ADDRESS, ~~Russells Welwyn Garden City~~ Herts.

Hill Court,
3,Observatory Gardens,
London, W.8.

9'

WOOD, Alison E. Miss.
~~Russells~~
~~Welwyn Garden City.~~ ~~Herts.~~
6/8/32 2/-
Hill Court, Gorehams 3 NOV. 1943 9 NOV 1943
3,Observatory Gardens,
London, W.8.

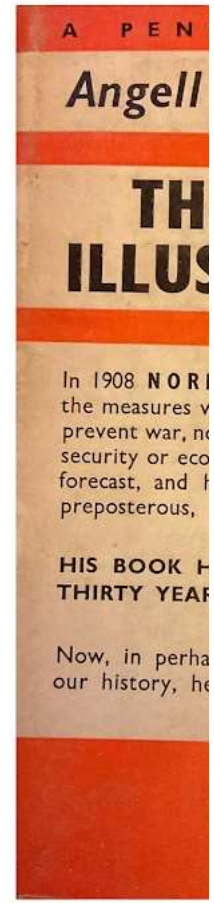
FINANCE CARD

16 APR 1943

Peace Pledge Union

96 Regent Street

LONDON W.1.



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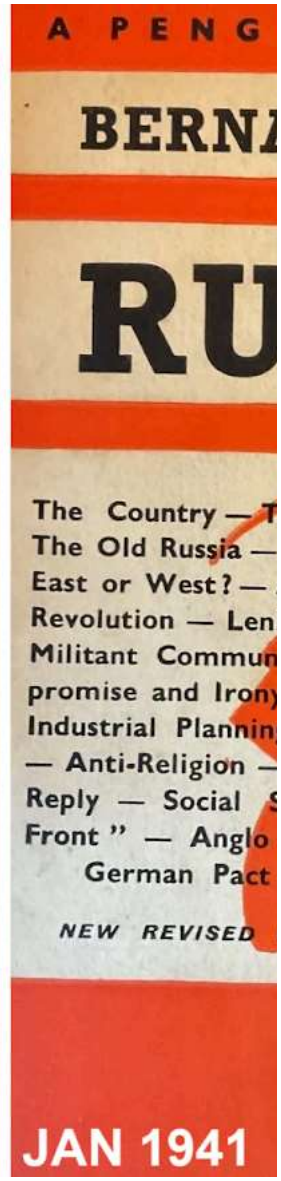
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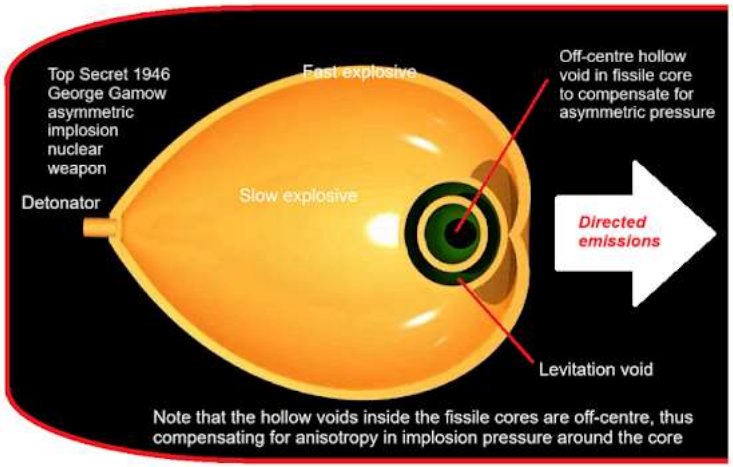
Now, in perha
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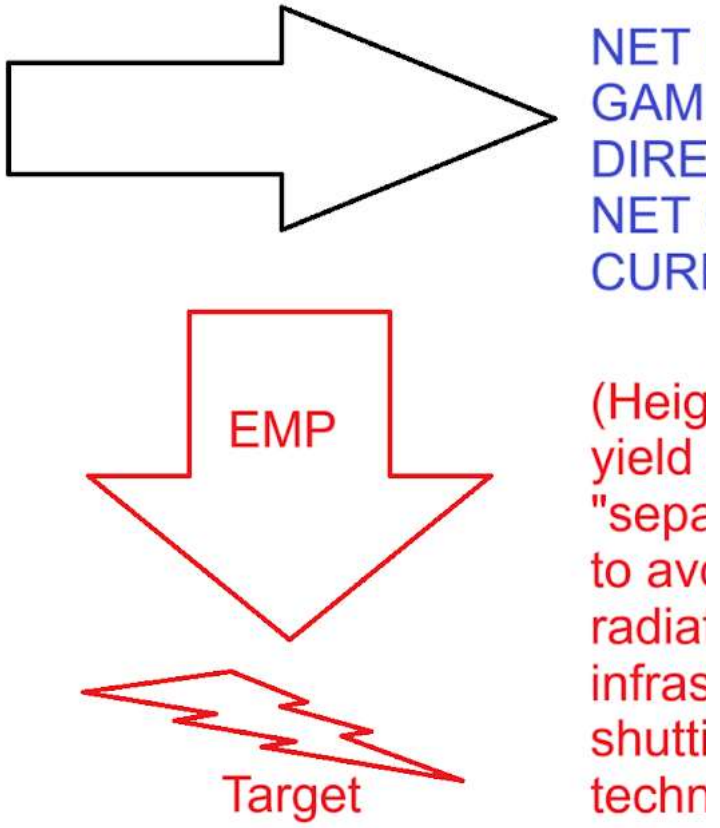
1936 UK "peace
of Nobel Peace


A PENGUIN SPECIAL
G. T. GARRATT
MUSSOLINI'S ROMAN EMPIRE
"If the new Roman Empire develops into an organism, strong enough to hold our country in pawn, and so situated that all our present re-armament will be futile, then Signor Mussolini should raise a new altar to Janus, and offer his daily thanksgiving to those men and women in England whose divided loyalties made his gamble a success."
FEB 1938


A PENGUIN SPECIAL
Dr. F. Borkenau
COLONIES? RAW MATERIALS? TRADE ROUTES? OUTLETS FOR POPULATION? OR WORLD DOMINATION?
N. H
THE NEW GERMAN EMPIRE
1939


A PENG
BERN
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The Country — T
The Old Russia —
East or West? —
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NEW REVISED
JAN 1941

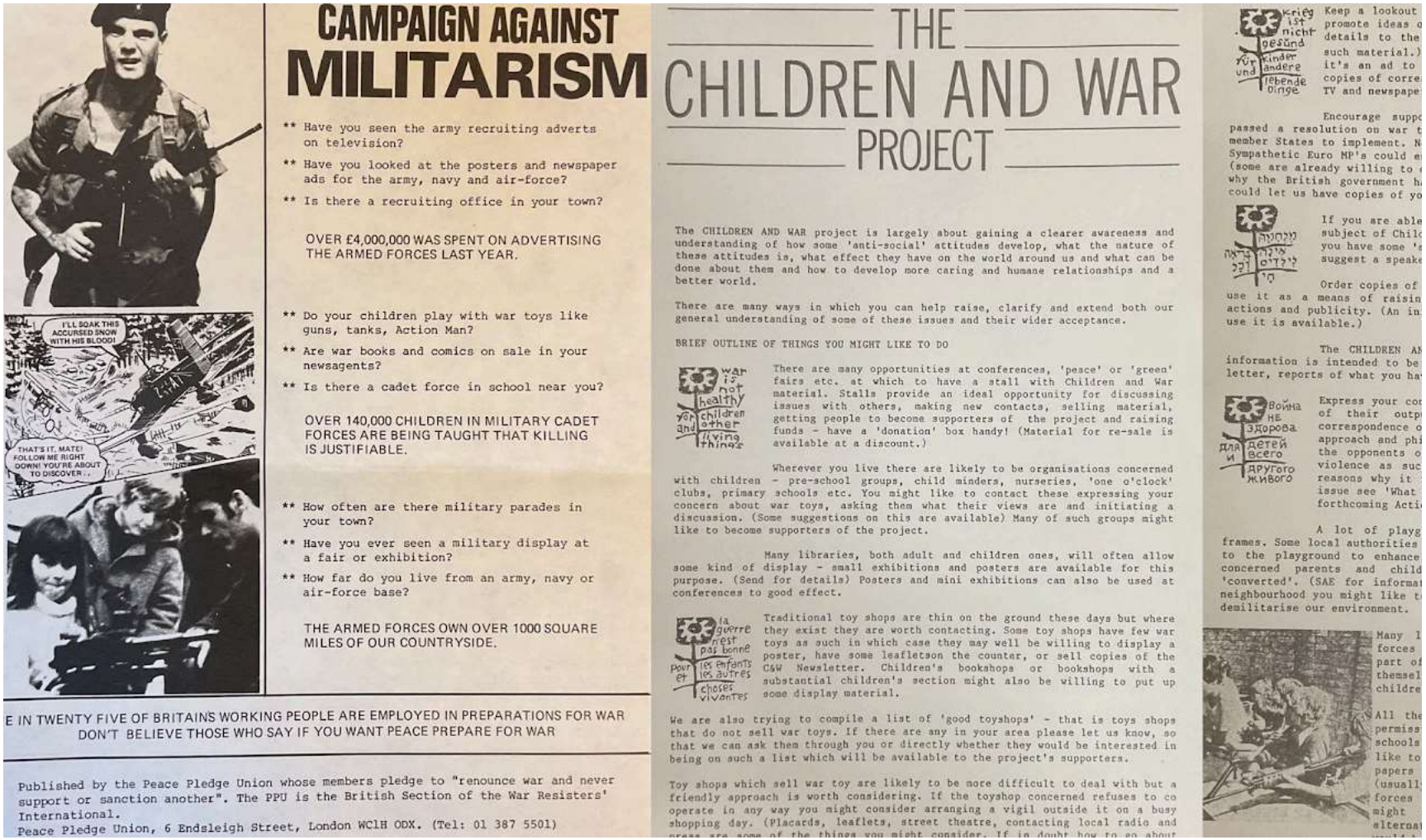




Source: adapted from "Weapon of Peace", *Electronics World*, November 1994

Non-lethal directed EMP (radiated perpendicularly to Compton Current) nucl

ABOVE: Comintern's legacy is a repetition of the 1920s and 1930s anti-deterrent mindset, falsely portrayed by Russian "Fifth Column" propaganda fronts as "pacifism" or "peace" arguments. When communists were rejected as unpopular at the election polls, they adopted subversive methods, trying to undermine war readiness (deterrence) to help Russia get in a position to start WWIII, just as they had helped the Nazis in the 1930s do exactly the same thing (while being awarded "Nobel Peace Prizes" for their propaganda; look at the history of 1920s and 1930s gas war anninilation "Nobel peace Prize" liars Lord Noel-Baker, Sir Norman Angell et al.). The result wasn't an end to the arms race or militarism, but an escalation on the enemy side, and an erosion of technical competence and military preparedness on the side of the democracies. Banning the TV transmission of classic "Tom and Jerry" cartoons for "portraying violence as normal to kids" and



CAMPAIGN AGAINST MILITARISM

** Have you seen the army recruiting adverts on television?

** Have you looked at the posters and newspaper ads for the army, navy and air-force?

** Is there a recruiting office in your town?

OVER £4,000,000 WAS SPENT ON ADVERTISING THE ARMED FORCES LAST YEAR.

** Do your children play with war toys like guns, tanks, Action Man?

** Are war books and comics on sale in your newsagents?

** Is there a cadet force in school near you?

OVER 140,000 CHILDREN IN MILITARY CADET FORCES ARE BEING TAUGHT THAT KILLING IS JUSTIFIABLE.

** How often are there military parades in your town?

** Have you ever seen a military display at a fair or exhibition?

** How far do you live from an army, navy or air-force base?

THE ARMED FORCES OWN OVER 1000 SQUARE MILES OF OUR COUNTRYSIDE.

E IN TWENTY FIVE OF BRITAINS WORKING PEOPLE ARE EMPLOYED IN PREPARATIONS FOR WAR
DON'T BELIEVE THOSE WHO SAY IF YOU WANT PEACE PREPARE FOR WAR

Published by the Peace Pledge Union whose members pledge to "renounce war and never support or sanction another". The PPU is the British Section of the War Resisters' International.
Peace Pledge Union, 6 Endsleigh Street, London WC1H 0DX. (Tel: 01 387 5501)

THE CHILDREN AND WAR PROJECT

The CHILDREN AND WAR project is largely about gaining a clearer awareness and understanding of how some 'anti-social' attitudes develop, what the nature of these attitudes is, what effect they have on the world around us and what can be done about them and how to develop more caring and humane relationships and a better world.

There are many ways in which you can help raise, clarify and extend both our general understanding of some of these issues and their wider acceptance.

BRIEF OUTLINE OF THINGS YOU MIGHT LIKE TO DO

There are many opportunities at conferences, 'peace' or 'green' fairs etc. at which to have a stall with Children and War material. Stalls provide an ideal opportunity for discussing issues with others, making new contacts, selling material, getting people to become supporters of the project and raising funds - have a 'donation' box handy! (Material for re-sale is available at a discount.)

Wherever you live there are likely to be organisations concerned with children - pre-school groups, child minders, nurseries, 'one o'clock' clubs, primary schools etc. You might like to contact these expressing your concern about war toys, asking them what their views are and initiating a discussion. (Some suggestions on this are available) Many of such groups might like to become supporters of the project.

Many libraries, both adult and children ones, will often allow some kind of display - small exhibitions and posters are available for this purpose. (Send for details) Posters and mini exhibitions can also be used at conferences to good effect.

Traditional toy shops are thin on the ground these days but where they exist they are worth contacting. Some toy shops have few war toys as such in which case they may well be willing to display a poster, have some leafletson the counter, or sell copies of the C&W Newsletter. Children's bookshops or bookshops with a substantial children's section might also be willing to put up some display material.

We are also trying to compile a list of 'good toyshops' - that is toys shops that do not sell war toys. If there are any in your area please let us know, so that we can ask them through you or directly whether they would be interested in being on such a list which will be available to the project's supporters.

Toy shops which sell war toy are likely to be more difficult to deal with but a friendly approach is worth considering. If the toyshop concerned refuses to co operate in any way you might consider arranging a vigil outside it on a busy shopping day. (Placards, leaflets, street theatre, contacting local radio and

Keep a lookout promote ideas o details to the such material.) it's an ad to copies of corre TV and newspape

Encourage suppo passed a resolution on war t member States to implement. N Sympathetic Euro MP's could e (some are already willing to why the British government h could let us have copies of yo

If you are able subject of Chil you have some suggest a speake

Order copies of use it as a means of raisin actions and publicity. (An in use it is available.)

The CHILDREN AN information is intended to be letter, reports of what you ha

Express your co of their outp correspondence o approach and phi the opponents o violence as suc reasons why it issue see 'What forthcoming Acti

A lot of playg frames. Some local authorities to the playground to enhance concerned parents and child 'converted'. (SAE for informa neighbourhood you might like t demilitarise our environment.

Many l forces part o themsel childre

All the permiss schools like to papers (usuall forces might alterna

banning "Action Man" style toy guns for "encouraging deterrence of dictators to kids" in the West, didn't stop Russia's Hitler Youth movement from preparing for war. All this just helped the enemy prepare for WWIII. The paranoid consipracies aren't on the side of the democracies, but on the side of the dictatorships and their fellow travelling "Sputniks" infiltrating the Western political systems, mass media, and educational establishments with delusional fanatical bias.

В.А. Котляревский, В.И. Ганушкин,
А.А. Костин, А.И. Костин, В.И. Ларионов

УБЕЖИЩА ГРАЖДАНСКОЙ ОБОРОНЫ

Конструкции и расчет

Под редакцией
д-ра техн. наук,
проф. В.А. Котляревского

Москва
Стройиздат
1989

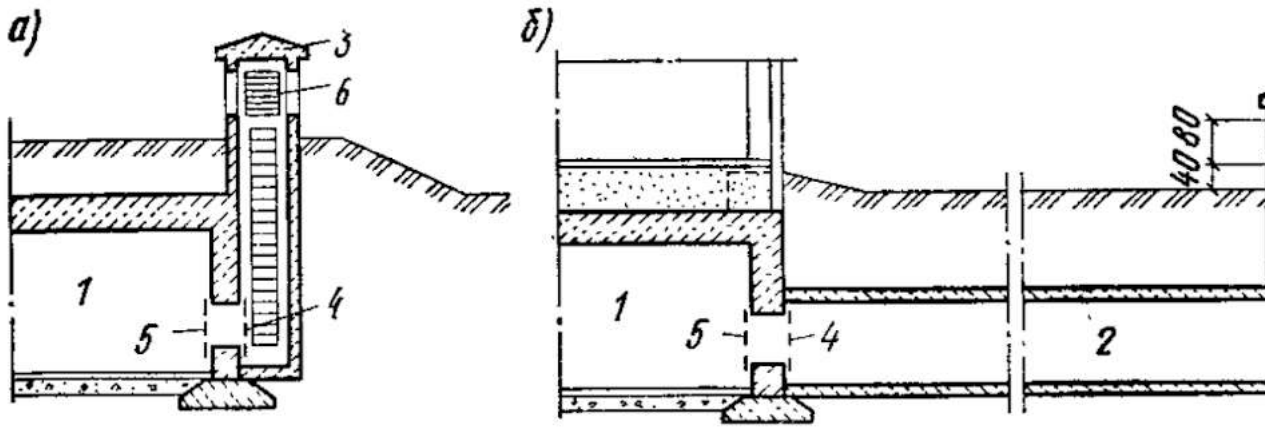


Рис. 4.5. Разрез аварийного выхода из убежища

а — примкнутый к убежищу; *б* — с устройством тоннеля; *1* — помещ
жища; *2* — тоннель аварийного выхода; *3* — неразрушаемый ого
защитно-герметический ставень; *5* — герметический ставень; *6* — ж
решетки

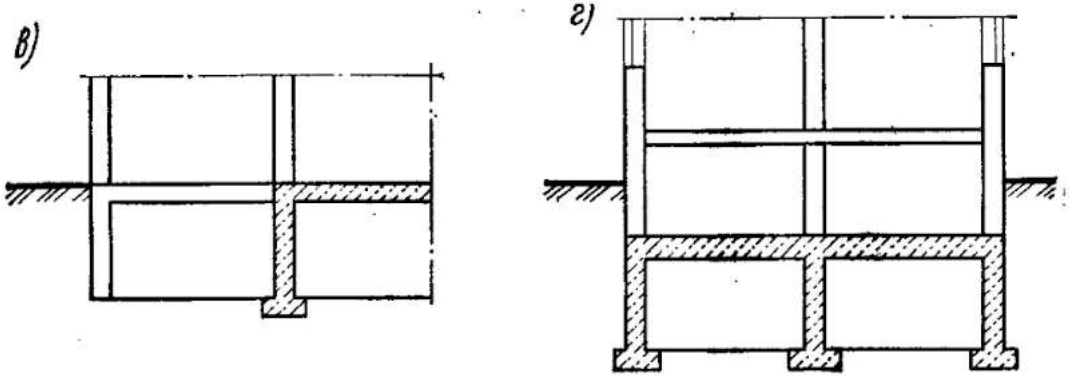
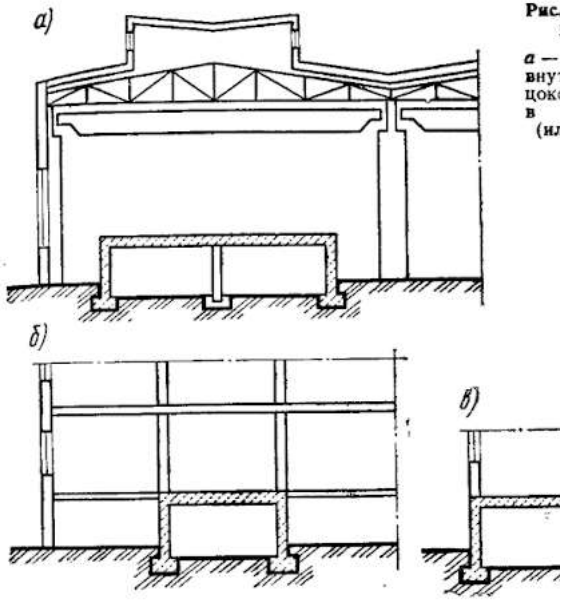


Рис. 7.2. Схемы размещения убежищ

а — в подвалах частично заглубленных в грунт; *б* — в подвалах полностью заглубленных в грунт; *в* — в подвалах с выходом стен убежищ в незащищенные помещения; *г* — под техническими подпольями





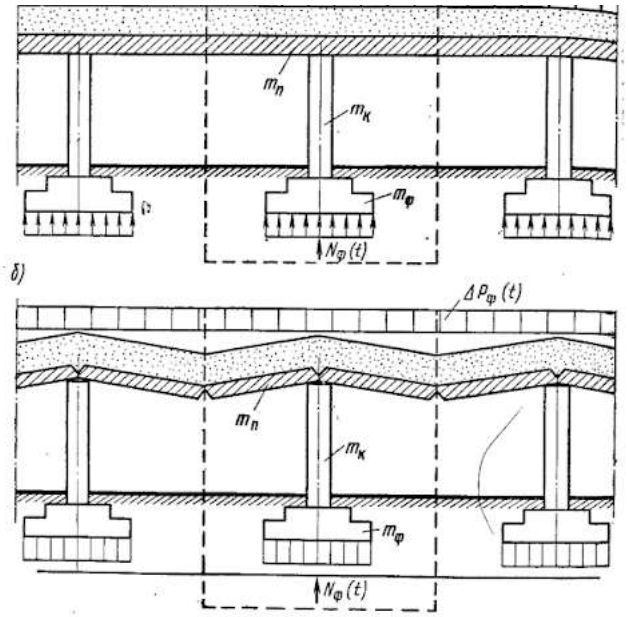


Рис. 8.1. Расчетная схема к определению параметров движения убежищ
а — при работе элементов покрытия в упругой стадии; *б* — в пластической стадии

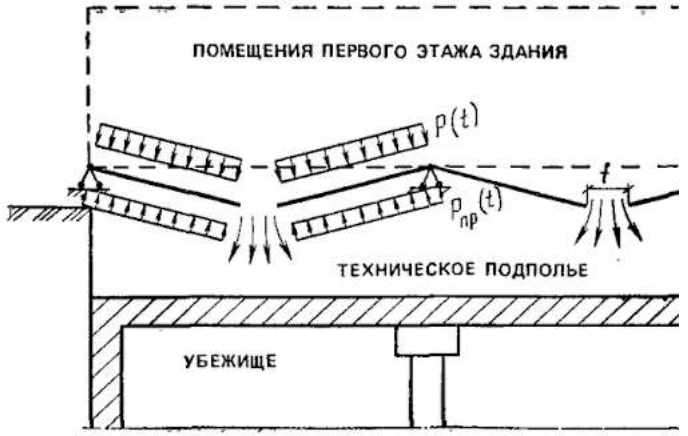
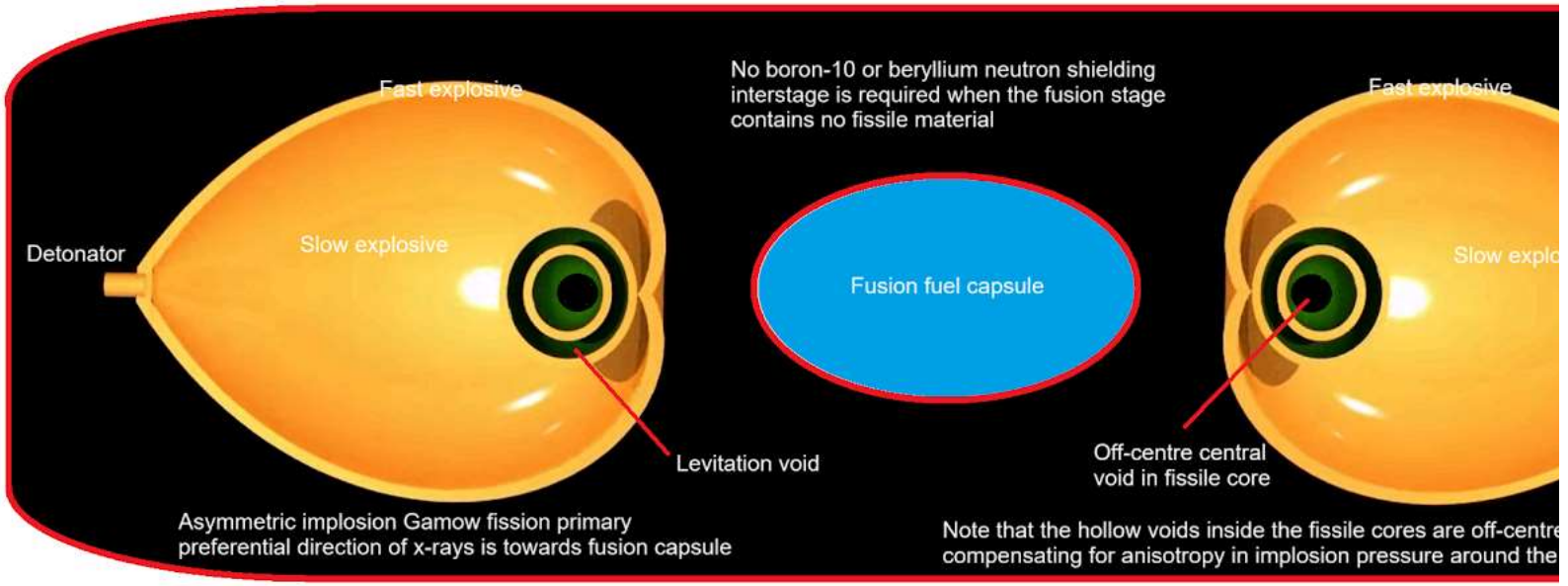
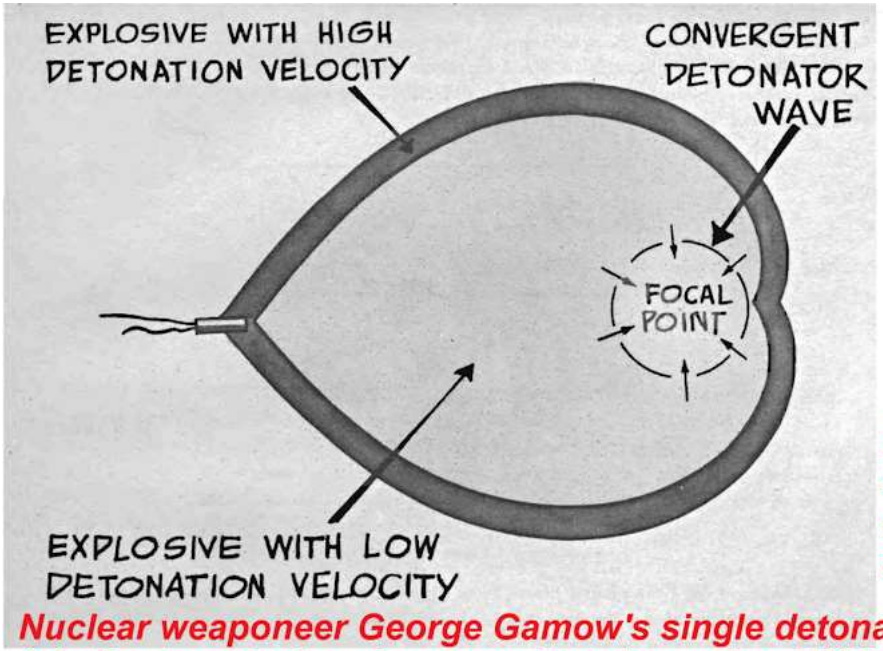


Рис. 7.4. Расчетная схема к определению параметров волны
ническом подполье

SOURCE: *Civil defense shelters. Designs and calculations by VA Kotlyarevsky, VI Go Kostin, et al.; edited by VA Kotlyarevsky. - M.: Stroyizdat, 1989 = Убежища граждан обороны. Проекты и расчеты / В.А. Котляревский, В.И. Ганушкин, А.А. Костин редакцией В. А. Котляревского. - М.: Стройиздат, 1989.*

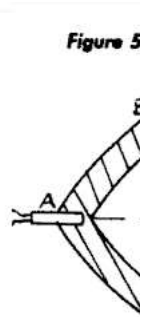


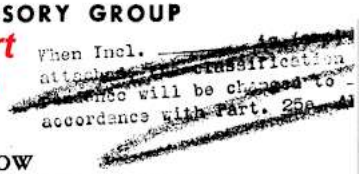


General Considerations ON EXPLOSIVES AND EXPLOSIONS

A REPORT PREPARED FOR THE AAF SCIENTIFIC ADVISORY GROUP

By G. GAMOW
The George Washington University, Department of Physics









Page 13 of this report is on left (this report covers fission and H-bombs)

Nuclear weaponeer George Gamow's single detonator design for an implosion system (similar to a design shown on Russian nukes Wikipedia for years!)

SOURCE: https://www.governmentattic.org/vonK/VKarman_Eplosives_c9_Pt1.pdf

FIGURE 1

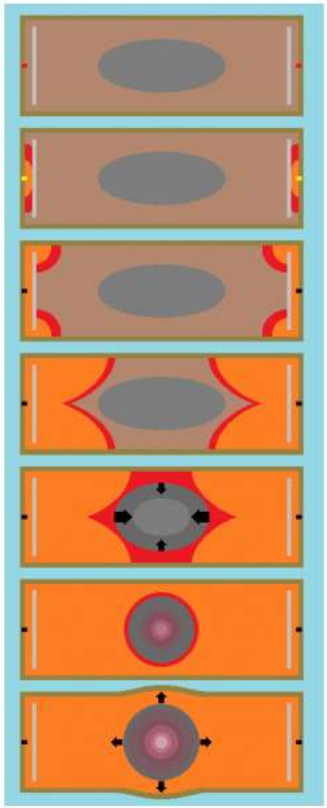
DISPOSITIF PYROTECHNIQUE POUR EXPERIENCE D'IMPLOSION CYLINDRIQUE

Un milieu léger (en rouge au centre) est entouré d'un cylindre métallique dont l'épaisseur est de 2,5 ou 4 mm suivant le métal utilisé. L'explosif (en noir), de diamètre extérieur 200 mm, est initié par quatre générateurs d'ondes cylindriques amorcés simultanément. La visée par radiographie X s'effectue suivant l'axe du cylindre.

Implosion device, designed by Louis Médard, Robert Sartorius and André Cachin, engineers of the Service des Poudres in the early 50s (French first test was 1960).

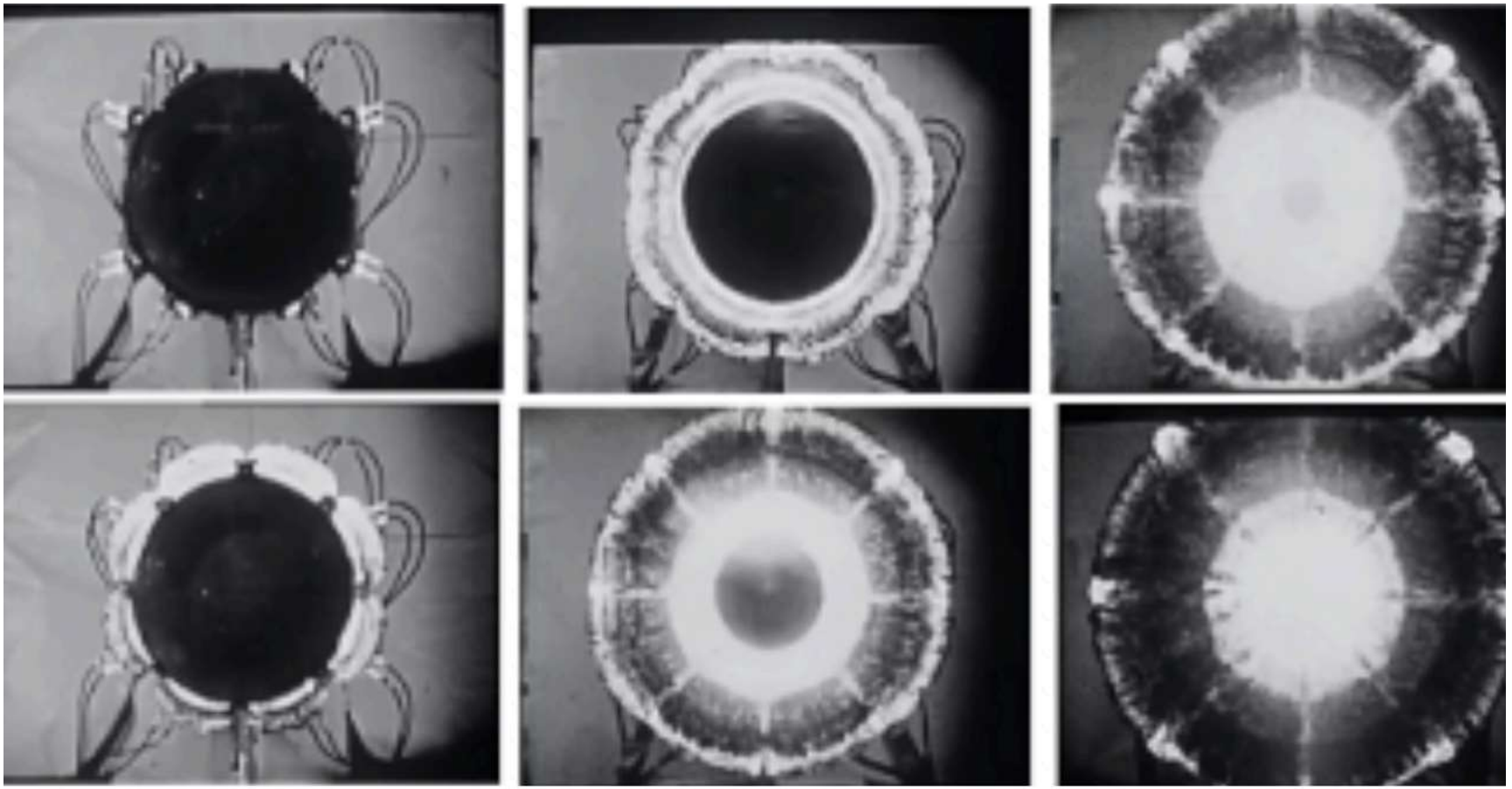


26



Linear implosion W48 artillery shell.

June 1991 issue of Chocs: revue scientifique et technique de la Direction des Applications Militaires, Interface instabilities in a cylindrical implosion (CEA-DAM publication)



Flash x-ray photos of stages in French nuclear implosion system hydrotest.

SOURCE: *Implosion,* Fort de Vaujour, France, 1970

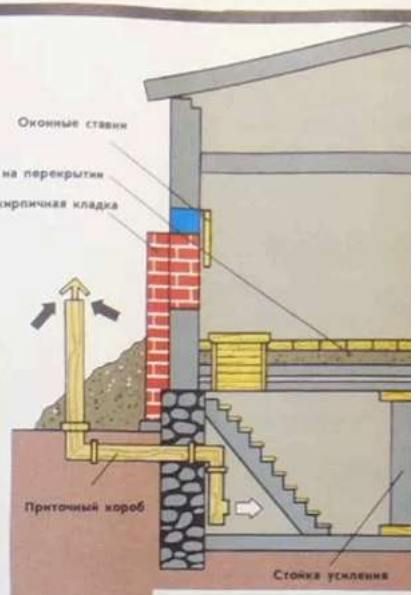
ЗАЩИТНЫЕ СООРУЖЕНИЯ ГО

Противорадиационное укрытие — сооружение, обеспечивающее защиту людей от ионизирующих излучений при радиоактивном заражении местности и светового потока, частично от ударной волны и проникающей радиации (в том числе и от нейтронного потока), а также от непосредственного попадания на кожу и одежду людей радиоактивных, отравляющих веществ и бактериальных средств



ПРОТИВОРАДИАЦИОННОЕ УКРЫТИЕ ИЗ ЛЕСОМАТЕРИАЛА С ПЕРЕКРЫТИЕМ ИЗ ЖЕЛЕЗОБЕТОННЫХ ПЛИТ

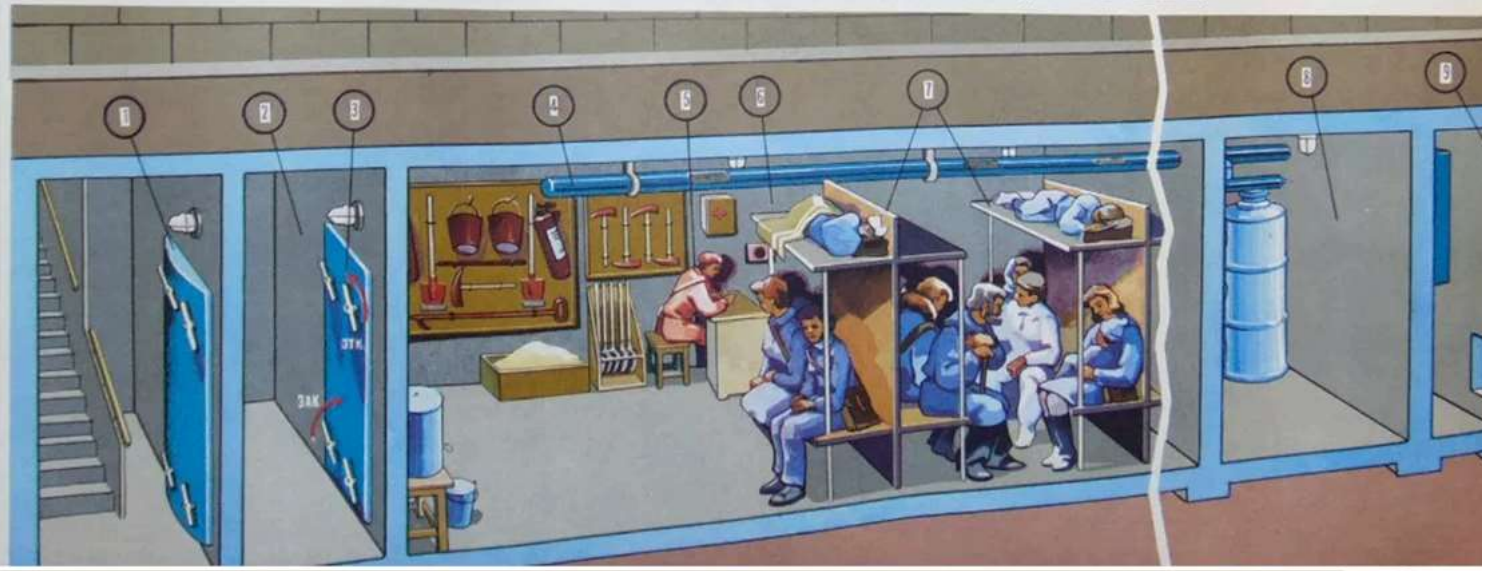
ПОГРЕБ, ПРИСПОСОБЛЕННЫЙ ПОД УКРЫТИЕ



ПОДВАЛЬНОЕ ПОМЕЩ

УСТРОЙСТВО И ВНУТРЕННЕЕ ОБОРУДОВАНИЕ УБЕЖИЩА

Убежище — сооружение герметического типа, предназначенное для защиты укрывающихся в них людей от всех поражающих факторов ядерного взрыва, отравляющих веществ, бактериальных средств, а также от высоких температур и вредных газов, образующихся при пожарах



1 — защитно-герметическая дверь; 2 — тамбур; 3 — герметическая дверь; 4 — воздухозаборник; 5 — место для дежурного; 6 — основное помещение; 7 — места для сидения и лежания; 8 — фильтровентиляционный агрегат; 9 — аварийный выход; 10 — светильник

Оружие массового поражения иностранных армий и средства защиты от него
(Комплект из 20 плакатов)

Рецензент
Автор С.

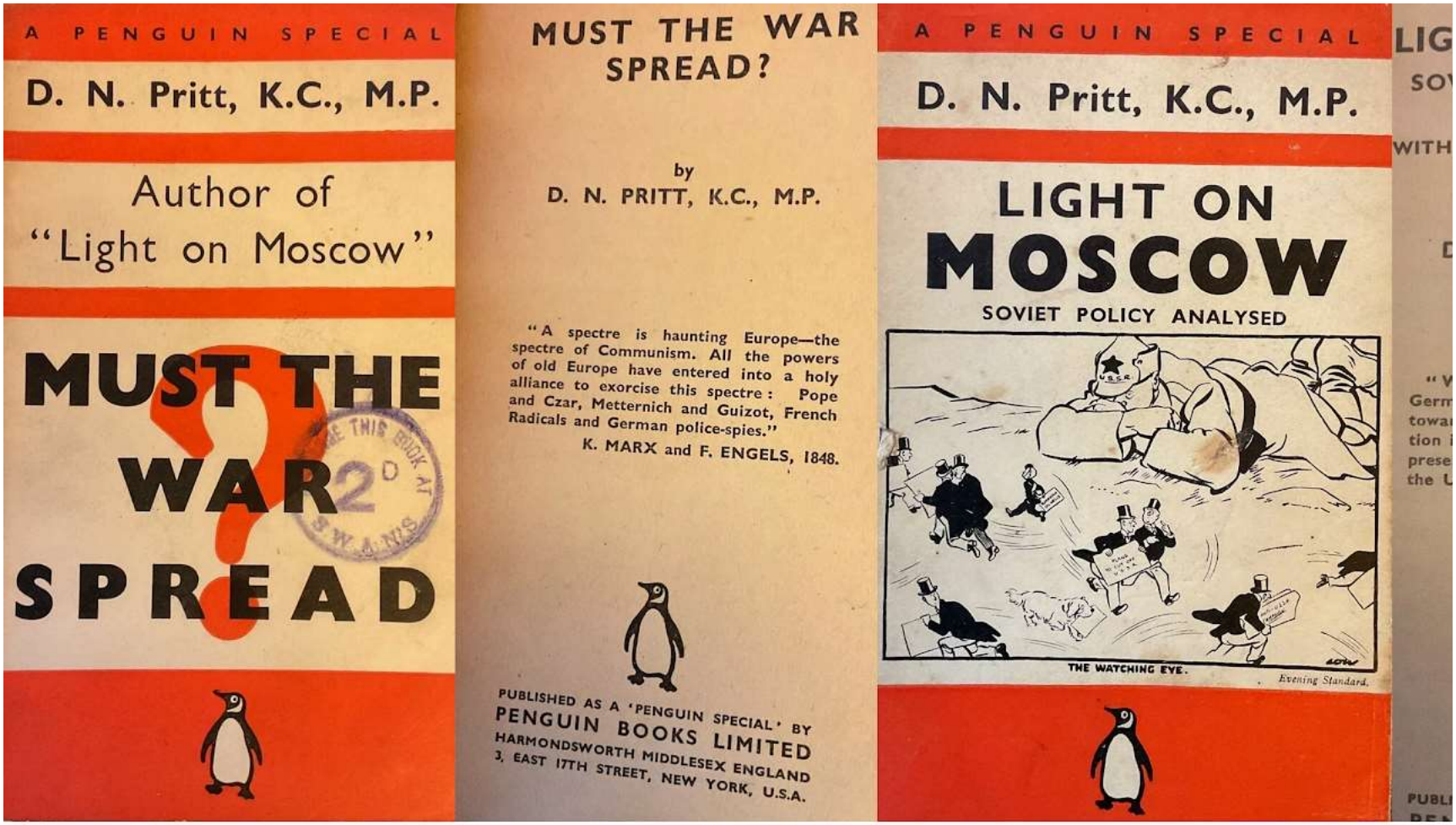
Сдано в набор 19.06.86. Подписано к печати 17.02.87. Г-13553. Формат 60×90 1/16. Художестве
Печать офсетная. Бумага офсетная. Уч.-изд. л. 1,53. Усл. кр.-отт. 8. Тираж рон. Корре
50 000 экз. Заказ 2952. Цена комплекта 3 р. Изд. № 2/м.-418.

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Госкомиздат РСФСР. Полиграфическое производственное объединение «Офсет» Управления издательств, полиграфии и книжной торговли Волгоградского облисполкома. Волгоград, ул. КИМ, 6

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ЗАЩИТНЫЕ СООРУЖЕНИЯ ГРАЖДАНСКОЙ ОБОРОНЫ
ПРЕДНАЗНАЧЕНЫ ДЛЯ КОЛЛЕКТИВНОЙ ЗАЩИТЫ ЛЮДЕЙ ОТ ОРУЖИЯ МАССОВОГО ПОРАЖЕНИЯ
1981 da
poster:
of civil d
УБЕЖИЩА
Встроенное убежище (в подвале здания)
Отдельно стоящее убежище (вне здания)
В убежищах в мирное время могут размещаться
гаражи и др.
ABOVE: double blast doors shelter
ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ
Противорадиационное укрытие из сборного железобетона
Подвал,
убежище
ПРОСТЕЙШИЕ УКРЫТИЯ
Противорадиационное укрытие из лесоматериалов
Открытая щель



Russian apologist and leading Labour Party Communist barrister and MP, Denis Pritt, Q
Russian-Nazi invasion of Poland in 1939 as due to Britain's failure to align itself with Sta
Pritt was finally expelled from the Labour Party in March 1940 for supporting Russia's in

ABOVE: Why didn't Britain declare war on Russia when it jointly invaded Poland with the Nazis, or even later when Russia invaded Finland single-handed? Answer: Comintern had stuffed the British mass media, British universities, and even the Labour Party with Russian stooges! Barrister Denis Pritt, Labour MP, simply blamed the British government for not cosying up to Communist dictatorial Russia (in the same way Chamberlain had cosied up to Adolf Hitler's Nazis)! Pritt in 1936 went to watch the "Trial of the Sixteen" in Moscow, a show trial purge of Stalin's criticis that made a mockery of the law, but be defended Stalinism in his tract, "The Zinoviev Trial". He was only finally kicked out of the Labour Party after he defended Russia's invasion of Finland in popular Penguin Book

Specials. But he wasn't alone. The communists of the British media used the same tactics as the Nazis to undermine or destroy critics, so they managed to churn out one-sided propaganda nearly as bad as the media saturation with anti-nuclear, anti-CO2 crap today.

a Statement of Policy

The Campaign for Nuclear Disarmament seeks to persuade people that atomic and similar armaments are totally wrong and should be abolished, and it has no other aim. But its members believe that mere vague condemnation of atomic weapons is not enough, that equally vague talk of agreements between the nuclear powers is not enough, and that some definite action must be taken. The British Government should announce its intention to abolish these armaments and should then proceed to do so, at a given date, whatever other nuclear powers may decide; it should if necessary act unilaterally. One nation, able to produce these weapons, should set other nations an example by deliberately challenging the hysterical fear that is behind the nuclear arms race. Every argument used by Britain to excuse her possession of these armaments can be used by other countries as a reason for acquiring them. And Britain cannot be adequately defended by atomic armaments. To retain them, to keep on manufacturing them, at a cost that menaces our whole economy, is merely to play an idiotic game of bluff. And the mere existence of these nuclear arms, threatening a world catastrophe, is not only wasting money badly needed elsewhere, and transforming every East-West disagreement into a crisis, but is also having an

campaign
dis

143 Fleet St. London E

The President: Earl Russ

The Vice-President: J.

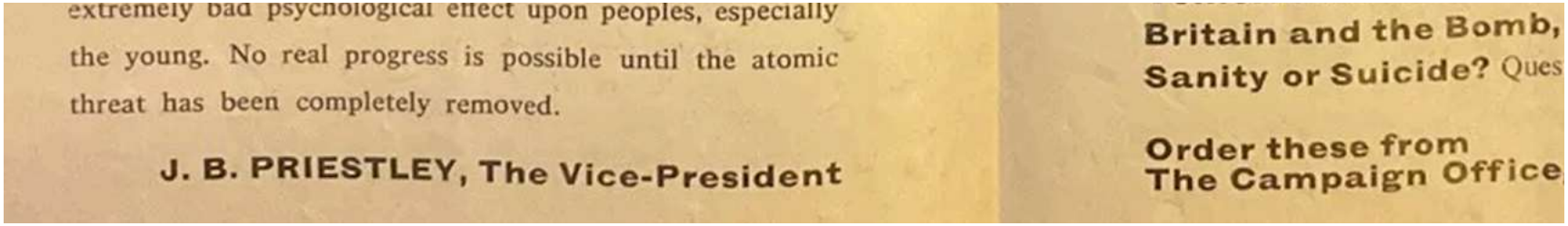
The Executive Commit
Collins (Chairman), Ritchie Cald
Ted Bedford (Hon. Treasurer),
Cameron, Howard Davies, Mic
Jacquetta Hawkes, Professor Nic
Kingsley Martin, The Revd Dr
Taylor.

The Organising Secret

The Sponsors: John Arlott
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Bedoyère, Bob Edwards, M.P.,
Forster, C.H., A. S. Frere, Gera
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Patrick Heron, The Revd Trev
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Nicholson, Sir Herbert Read,
Professor J. Rotblat, Lord Simon
Tippett, Vicky, Professor C. H.
Lord Wilmot, Professor Barbara

campaign

If Man is to Survive, By
Who's Going to be the
Tomorrow's Children,



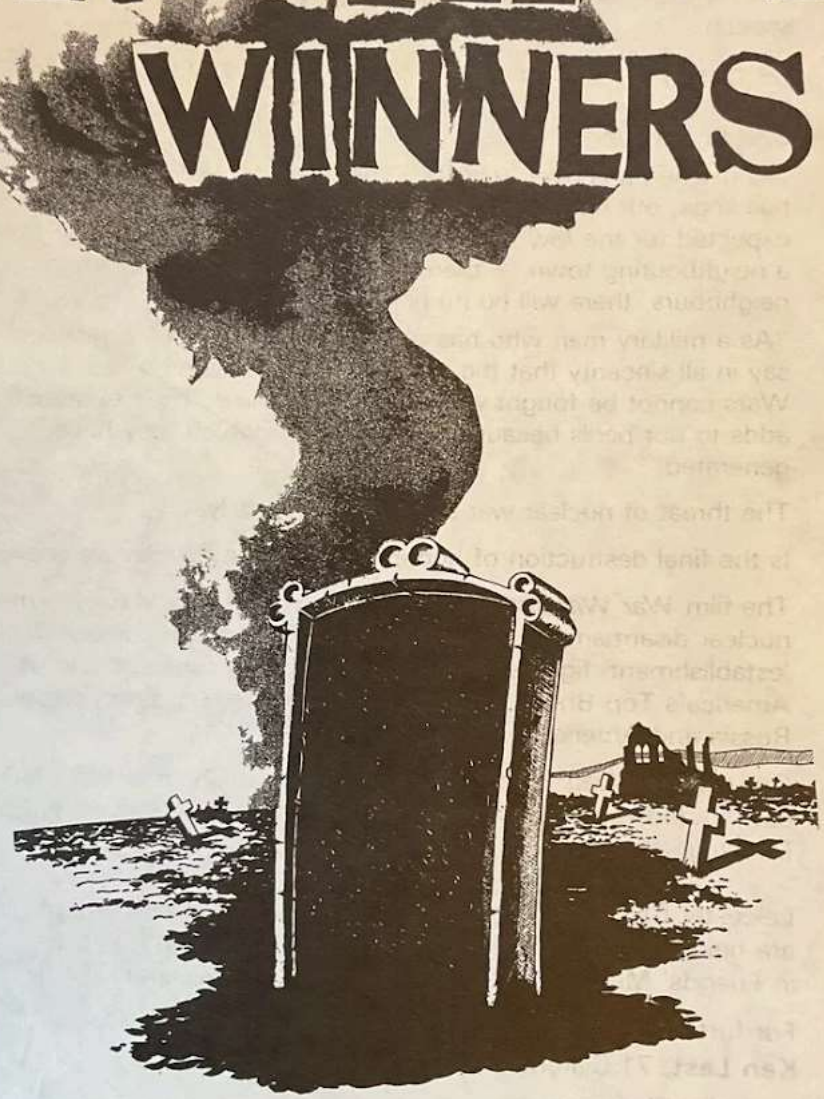
extremely bad psychological effect upon peoples, especially the young. No real progress is possible until the atomic threat has been completely removed.

J. B. PRIESTLEY, The Vice-President

Britain and the Bomb,
Sanity or Suicide? Ques

Order these from
The Campaign Office

WAR WITHOUT WINNERS



Leicester Campaign for Nuclear Disarmament

PUBLIC MEETING: TUESDAY ~~14th OCTOBER 7.30 p.m.~~

Charles Wilson Building, Leicester University

Film: *War Without Winners* **Speaker:** Dan Smith, National CND *Questions and Discussions*

A few months before he died, Lord Louis
military experience was almost unrivalled,
speech:

"A new world war can hardly fail to involv
weapons. Such a war would not drag on f
over in a matter of days.

"And when it is over, what will the world l
buildings, our homes, will exist no more. .
expected for the few mutilated survivors in
a neighbouring town – there will be no ne
neighbours, there will be no help, no hope.

"As a military man who has given half a ce
say in all sincerity that the nuclear arms rac
Wars cannot be fought with nuclear weapo
adds to our perils because of the illusions w
generated."

The threat of nuclear war seems to grow da

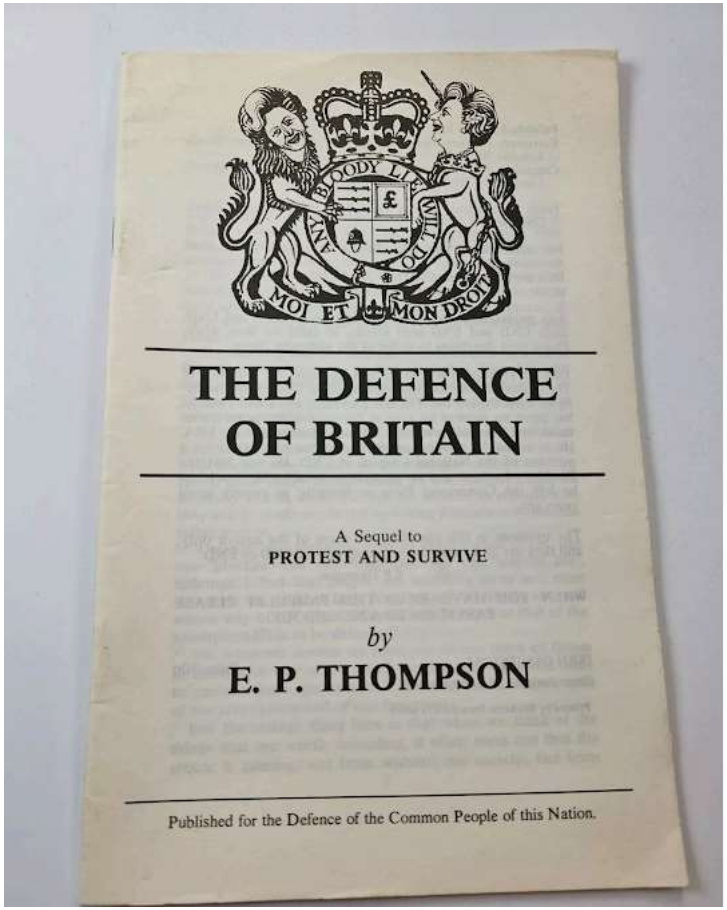
Is the final destruction of humanity inevitabl

The film *War Without Winners* is a powerfu
nuclear disarmament, with statements from
'establishment' figures as Admiral La Roque
America's Top Brass, as well as opinions fro
Russia and America.

Our speaker, Dan Smith, is one of the Vice-
contributed to the recent BBC Panorama pro
Disarmament.

Leicester CND campaigns actively for nuclea
are held on the third Tuesday of every montl
in Friends' Meeting House, Queen's Road, L

For further information write to the Secretary
Ken Last, 71 Clarendon Park Road
or to the Chairman:
Peter Wright, 12 Lytton Road (Telephone 7



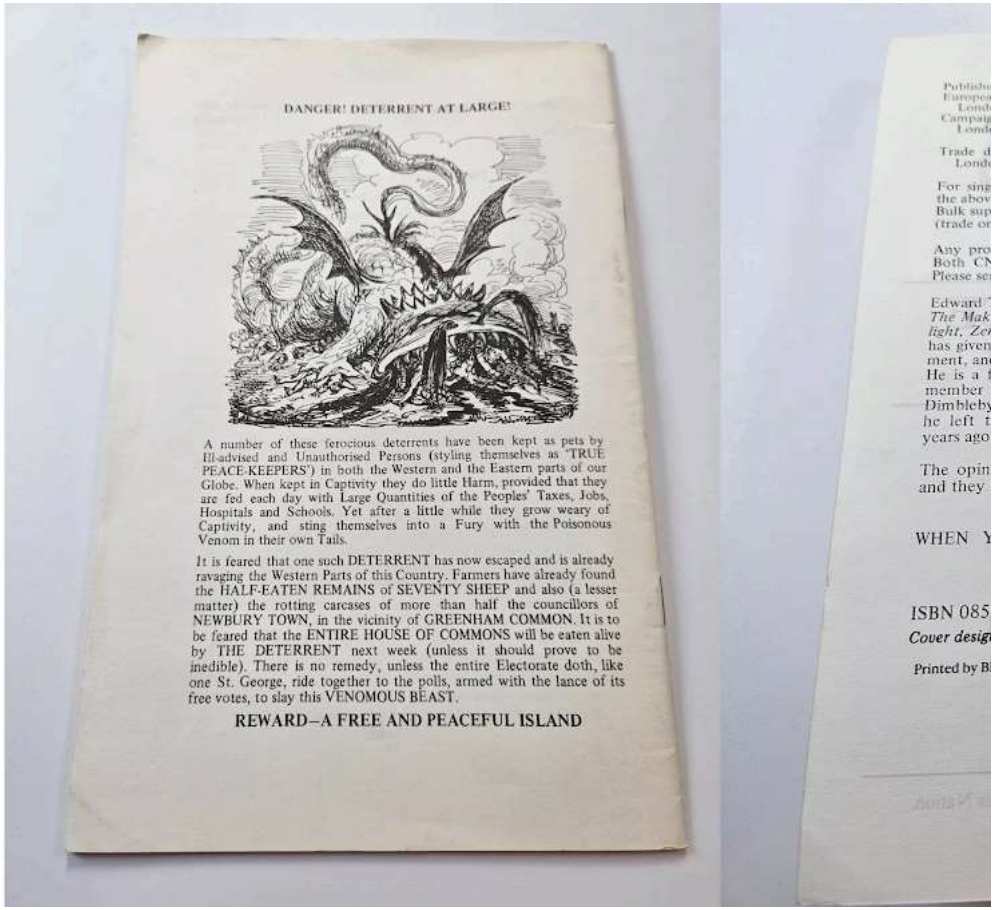
THE DEFENCE OF BRITAIN

A Sequel to
PROTEST AND SURVIVE

by

E. P. THOMPSON

Published for the Defence of the Common People of this Nation.

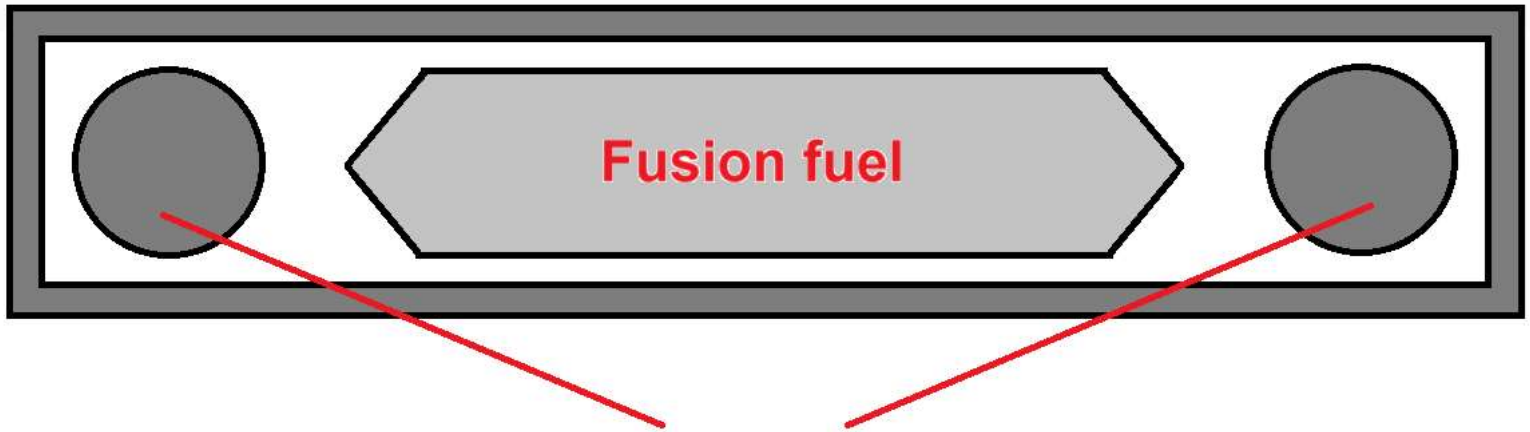


DANGER! DETERRENT AT LARGE!

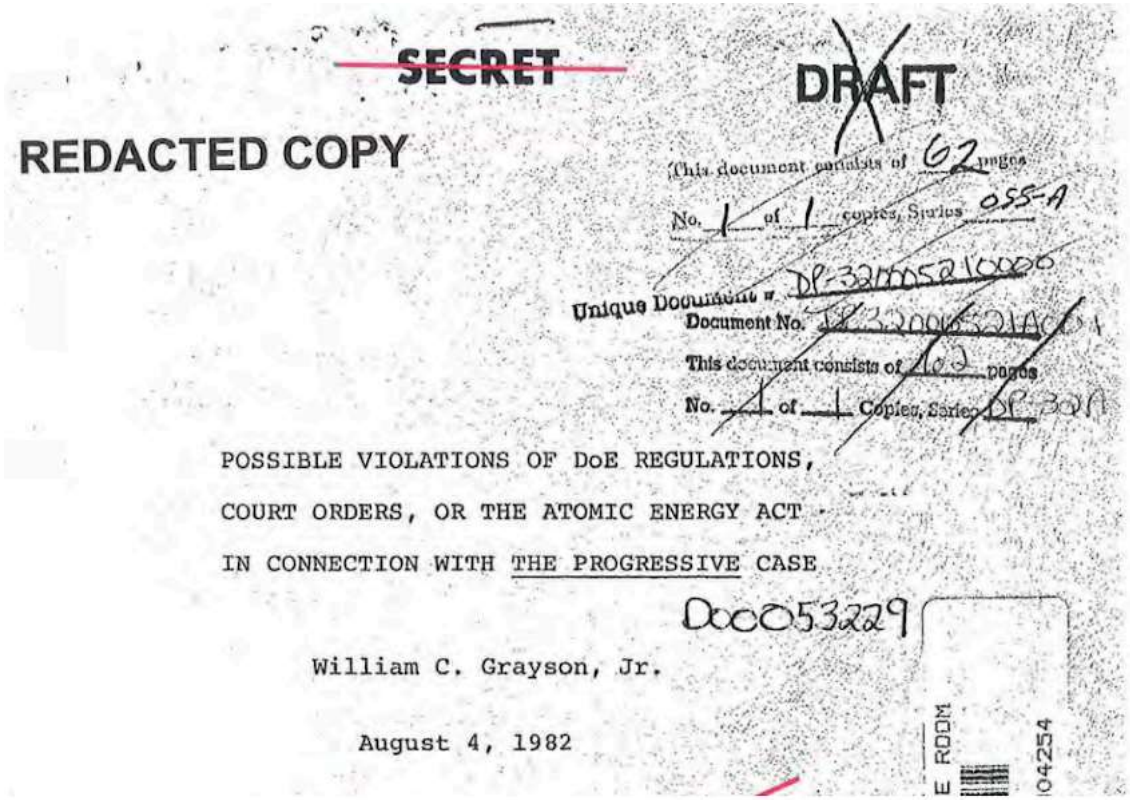
A number of these ferocious deterrents have been kept as pets by Ill-advised and Unauthorised Persons (styling themselves as 'TRUE PEACE-KEEPERS') in both the Western and the Eastern parts of our Globe. When kept in Captivity they do little Harm, provided that they are fed each day with Large Quantities of the Peoples' Taxes, Jobs, Hospitals and Schools. Yet after a little while they grow weary of Captivity, and sting themselves into a Fury with the Poisonous Venom in their own Tails.

It is feared that one such DETERRENT has now escaped and is already ravaging the Western Parts of this Country. Farmers have already found the HALF-EATEN REMAINS of SEVENTY SHEEP and also (a lesser matter) the rotting carcases of more than half the councillors of NEWBURY TOWN, in the vicinity of GREENHAM COMMON. It is to be feared that the ENTIRE HOUSE OF COMMONS will be eaten alive by THE DETERRENT next week (unless it should prove to be inedible). There is no remedy, unless the entire Electorate doth, like one St. George, ride together to the polls, armed with the lance of its free votes, to slay this VENOMOUS BEAST.

REWARD—A FREE AND PEACEFUL ISLAND



Chuck Hansen 1979 double primary H bomb design SIMILAR to Russian project 49 first tested 23 Feb 1958. SOURCE: Chuck Hansen's letter (dated August 27, 1979), to Senator Charles Percy of Illinois: "in letters to me dated April 10, 1979, and June 18, 1979, representatives of the DOE stated that my open research, and a national contest that I conducted, would lead to the generation and transmission of classified data - this in spite of the fact that all of the information that I was seeking would come from unclassified published sources. It has also become obvious that at least one of the three concepts discussed in the disputed Morland article is currently unclassified in the Soviet Union, and that when it was discussed openly here in 1976 by a Soviet scientist, the U.S. government, acting through the Energy Research and Development Agency, classified his speeches (Morland might have stood a better chance of publishing his article in the USSR).



~~SECRET~~

DRAFT

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POSSIBLE VIOLATIONS OF DoE REGULATIONS,
COURT ORDERS, OR THE ATOMIC ENERGY ACT
IN CONNECTION WITH THE PROGRESSIVE CASE

D00053229

William C. Grayson, Jr.

August 4, 1982

E ROOM 104254

On August 27, 1979 Charles (Chu
to Senator Charles Percy which cont
the secret of the H-bomb, in terms
article.

On September 7, DoE received an
for comment which later turned out
Percy letter. Then on September 12
the Percy letter itself from LLNL, w
by Hugh Dewitt (at least two weeks
possibly only for provocation!) Ha
recipients (see Appendix 3), includ
man and Hugh Dewitt. All known rec
Only the Daily Californian seemed l
TRO was obtained on September 15.
the letter was published by the Mad
not one of the known recipients. P
effectively mooted The Progressive
for dismissal. The Madison Capitol-

22 ~~16~~

SOURCE: full 67 pages declassified report is at: https://www.governmentattic.org/53docs/DOEtheGr

НАУЧНО-ПОПУЛЯРНАЯ БИБЛИОТЕКА

Nuclear energy in aviation and rocketry.

Collection of articles

АТОМНАЯ ЭНЕРГИЯ В АВИАЦИИ И РАКЕТНОЙ ТЕХНИКЕ

Сборник статей



Книга рассчитана на офицеров Советской Армии, Авиации и Флота, советскую молодежь и членов ДОСААФ.
[The book is intended for officers of the Soviet Army, Aviation and Navy, Soviet youth and members of DOSAAF.]

ВОЕННОЕ ИЗДАТЕЛЬСТВО
МИНИСТЕРСТВА ОБОРОНЫ СОЮЗА ССР
МОСКВА — 1959

легким из металлов, плотность его соединения с водородом значительно превышает плотность тяжелых изотопов водорода (дейтерия и трития), находящихся в жидком состоянии. В иностранной прессе отмечается, что для обеспечения мощности взрыва порядка 10—20 млн. т тротила достаточно несколько сот килограммов гидрида лития. Это значит, что термоядерную бомбу может нести истребитель-бомбардировщик или управляемый снаряд.

Из зоны термоядерной реакции выбрасывается огромное количество быстрых нейтронов. Возник вопрос, нельзя ли эти нейтроны использовать для усиления силы взрыва. Оказывается, можно, если водородную бомбу заключить в оболочку из сравнительно дешевого природного урана 238.

Водородно-урановая бомба

Имеются сообщения в иностранной печати о схеме построения водородно-урановой бомбы, в которой сначала происходит расщепление ядер, затем синтез и снова расщепление. Возможная схема такой бомбы показана на рис. 61.

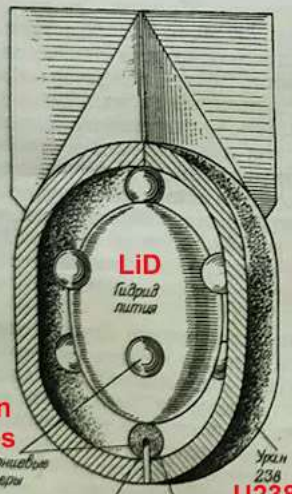


Рис. 61. Схема водородной бомбы

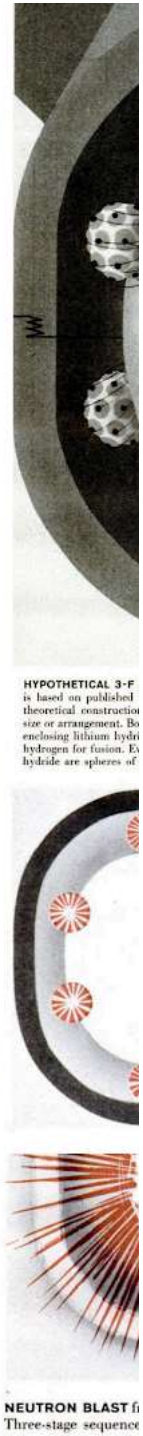
Вначале под действием газов от взрыва обычного взрывчатого вещества из плутониевых сфер (порошкообразный плутоний) образуются критические массы атомного детонатора. Под действием нейтронов, испускаемых бериллиевыми сердечниками, плутониевые сферы взрываются. Затем начинается термоядерная реакция в гидриде лития с выделением большого количества быстрых нейтронов. Эти нейтроны вызывают расщепление ядер природного урана, из которого изготовлена оболочка.

Fission devices

U238

Plutonium

Po-210/Beryllium



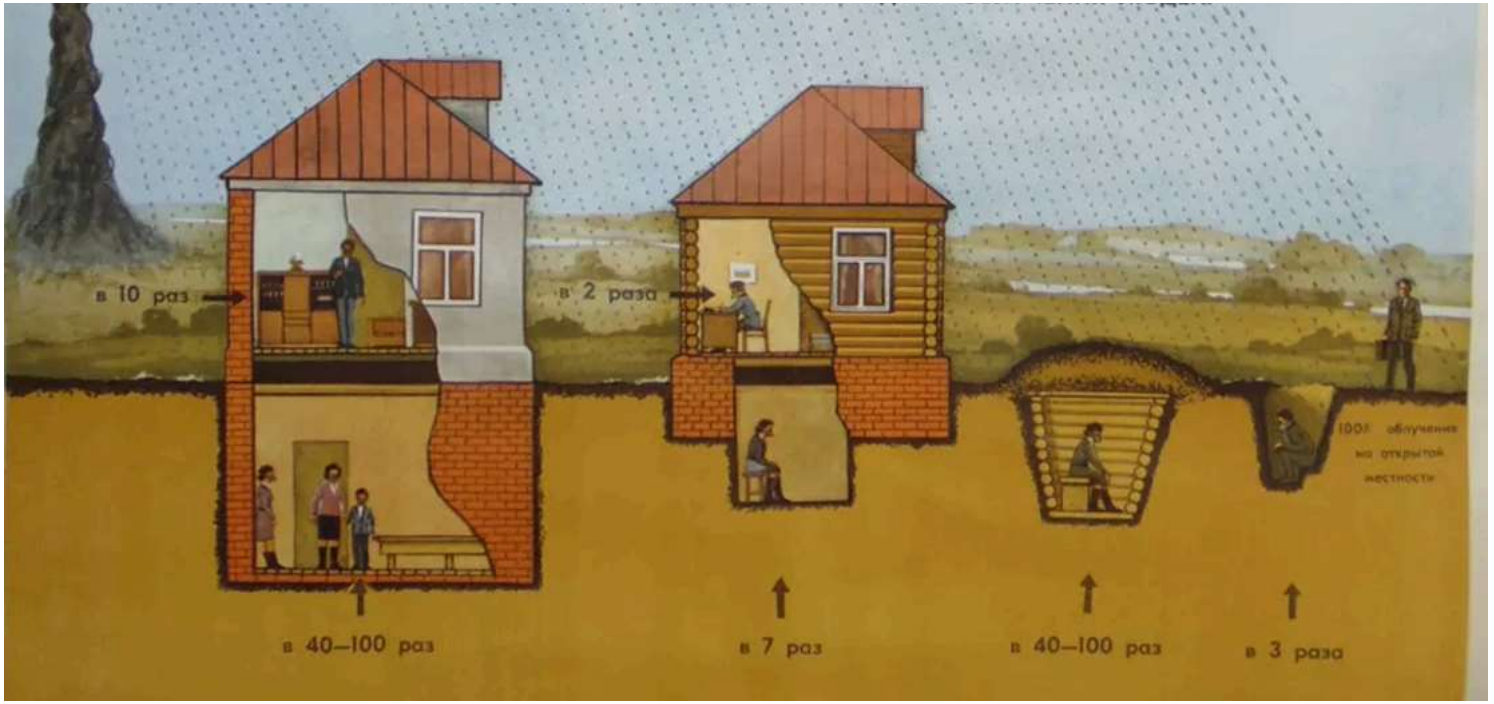
This 1959 Russian nuclear rockets book edited by J. M. Kader and published by the Military Publishing House of the USSR in Moscow, is unclassified and thus uses American sources for data.

It shows a design published (as Dr Alex Wellerstein has pointed out on his blog) in a 5 December 1955 USA *Life* Magazine article at page 54 (right). The Russian "project 49" double-primary test of 23 February 1958 used apparently similar ideas!




Очаг ядерного поражения
ГОРЕНИЕ, ТЛЕНИЕ В ЗАВАЛАХ
СПЛОШНЫЕ ПОЖАРЫ
30 кПа
20 кПа


ПОРАЖАЮЩИЕ ФАКТОРЫ ЯДЕРНОГО ВЗРЫВА
ПРОНИКАЮЩАЯ РАДИАЦИЯ,
средства защиты от нее
БЕТОН—10 см
ГРУНТ—14 см
КИРПИЧ—14 см
ДЕРЕВО—30 см
ТОЛЩИНА СЛОЕВ РАЗЛИЧНЫХ МАТЕРИАЛОВ, ОСЛАБЛЯЮЩАЯ ДЕЙСТВИЕ НЕВИДИМЫХ ЛУЧЕЙ В 2 РАЗА
УБЕЖИЩЕ
УКРЫТИЕ (подвал дома)
ПЕРЕКРЫТАЯ ЩЕЛЬ
ОТКРЫТАЯ ЩЕЛЬ
РАДИОАКТИВНОЕ ЗАРАЖЕНИЕ МЕСТНОСТИ,
средства защиты от него
ЗАЩИТНЫЕ СООРУЖЕНИЯ ОСЛАБЛЯЮТ ДОЗУ ОБЛУЧЕНИЯ ЛЮДЕЙ:


в 10 раз
в 2 раза
100% облучения на открытой местности
в 40–100 раз
в 7 раз
в 40–100 раз
в 3 раза

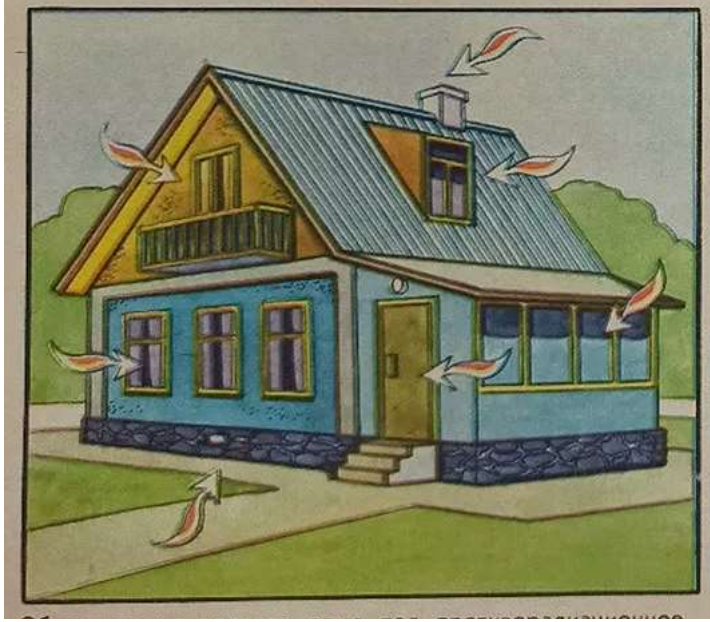
МЕРОПРИЯТИЯ ПО ПОВЫШЕНИЮ ЗАЩИТНЫХ СВОЙСТВ ДОМА (КВАРТИРЫ)



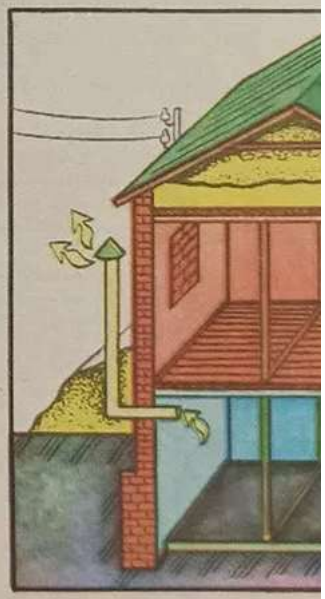
Оборудование дома (квартиры) средствами связи для своевременного получения распоряжений органов Советской власти и сигналов оповещения гражданской обороны



Подготовка дома (квартиры) в противопожарном отнош







Оборудование подвала дома под противорадиационное укрытие	Усиление защитных свойств помещений от проникающей радиации	Подготовка дома (квартиры радиоактивной пыли и аэро

ПОРАЖАЮЩИЕ ФАКТОРЫ ЯДЕРНОГО ВЗРЫВА

Проникающая радиация — это поток гамма-лучей и нейтронов, испускаемых в момент ядерного взрыва.

Поражающее действие проникающей радиации на людей вызывается облучением, которое оказывает вредное биологическое действие на клетки организма, в результате чего человек заболевает так называемой лучевой болезнью.

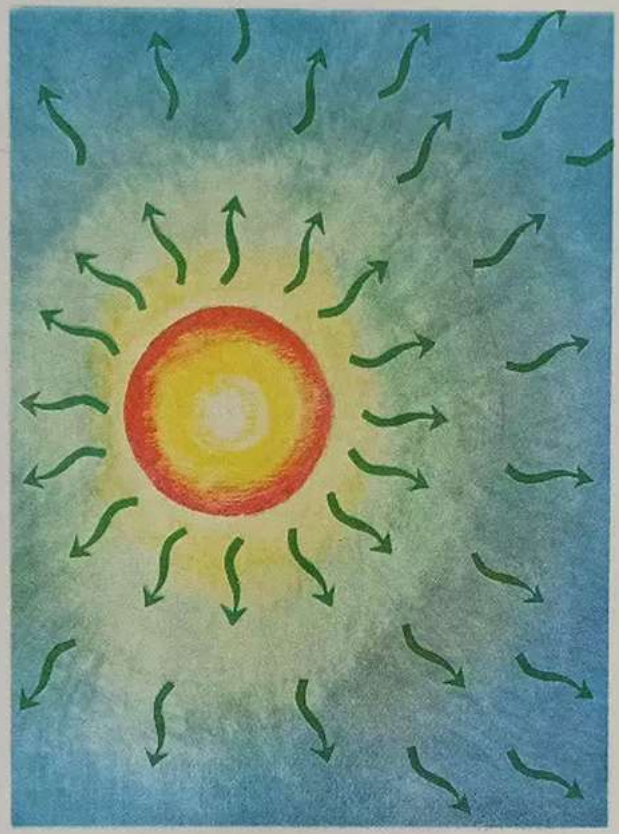
В зависимости от дозы облучения (которая измеряется в рентгенах) различают три степени лучевой болезни: первую (легкую), вторую (среднюю) и третью (тяжелую).

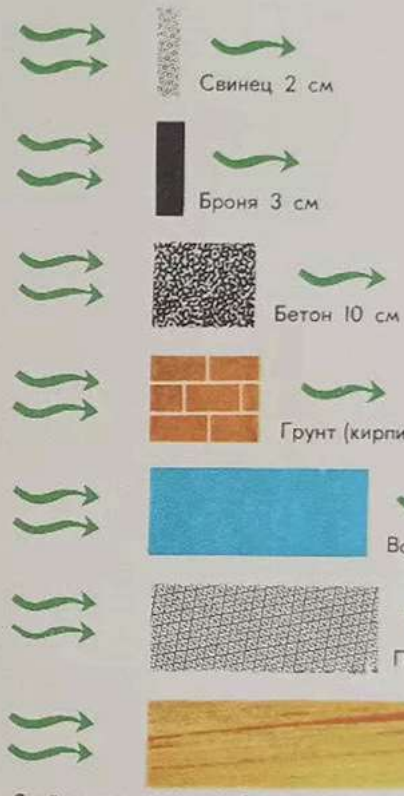
При лучевой болезни первой степени скрытый период продолжается две-три недели, после чего появляется недомогание, общая слабость, тошнота, головокружение, повышается температура.

При лучевой болезни второй степени скрытый период длится около недели, признаки заболевания — как и при лучевой болезни первой степени, но в более ярко выраженной форме. При активном лечении выздоровление наступает через 1,5—2 месяца.

Скрытый период при лучевой болезни третьей степени сокращается до нескольких часов. Болезнь протекает более интенсивно. При активном лечении выздоровление наступает через несколько месяцев.

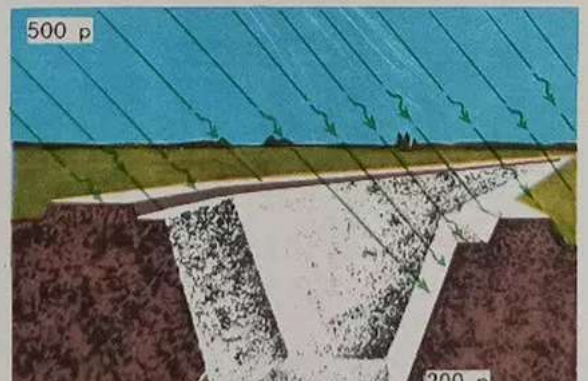
Ослабление интенсивности гамма-излучения характеризуется слоем половинного ослабления. Это сло
нии которого интенсивность гамма-лучей уменьшается в два раза.





Слой половинного ослабления некоторы

За преградами доза радиации значительно меньше, чем на открытой местности. Убежища практически по



Открытые щели ослабляют радиацию в 3—10 раз



Перекрытые щели ослабляют радиацию в 25—50 раз

ЕСЛИ ДОЗЫ ОБЛУЧЕНИЯ ПРЕВЫШАЮТ ДОПУСТИМЫЕ, ЧЕЛОВЕК ЗАБОЛЕВАЕТ ЛУЧЕВОЙ БОЛЕЗНЬЮ!

СТЕПЕНИ ЛУЧЕВОЙ БОЛЕЗНИ

100-200 р — лучевая болезнь I степени

200-300 р — лучевая болезнь 2 степени

300-450 р— лучевая болезнь 3 степени

50 р

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Для служебного пользования

Экз. № 14066

КРАТКИЙ СПРАВОЧНИК ПО БОЕВЫМ СВОЙСТВАМ ЯДЕРНОГО ОРУЖИЯ

Основными элементами **ядерных зарядов деления** являются: делящееся вещество (собственно ядерный заряд), отражатель нейтронов, заряд обычного взрывчатого вещества и искусственный источник нейтронов.

Формирование надкритической массы делящегося вещества в ядерных зарядах деления может осуществляться различными способами.

В зарядах так называемого имплозивного типа формирование надкритической массы осуществляется повышением плотности делящегося вещества путем его всестороннего обжатия давлением взрыва обычного взрывчатого вещества. Делящееся вещество в этих зарядах имеет массу меньше критической и располагается внутри заряда из обычного взрывчатого вещества. При взрыве обычного взрывчатого вещества делящееся вещество подвергается сильному обжатию, плотность его увеличивается, масса становится надкритической (рис. 3)

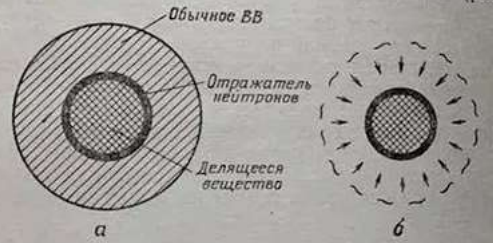


Рис. 3. Ядерный заряд деления имплозивного типа: *а* — до взрыва (плотность делящегося вещества нормальная, масса его меньше критической); *б* — в момент взрыва (плотность делящегося вещества выше нормальной, масса его больше критической)

и в нем развивается реакция деления. Чем больше степень обжатия, тем выше надкритичность ядерного горючего и соответственно больше мощность взрыва. При увеличении плотности делящегося вещества, например, в 2 раза критическая масса его уменьшается в 4 раза.

Возможны и другие схемы устройства заряда. В частности, в зарядах так называемого пушечного типа ядерное горючее разделено на две или несколько частей подкритических размеров, чтобы в каждой из

Radius for failure of military equipment, weapons and structures from nuclear explosions, km

Радиусы зон выхода из строя военной техники, вооружения и инженерных сооружений при ядерных взрывах

Name of equipment, weapons / Наименование техники, вооружения и сооружений or structures	Вид взрыва (Н — наземный, В — воздушный)	Severe damage: Давление, выводящее объект из строя, кг/см² pressure, kg/cm2	Мощность взрыва, тыс. т Nuclear yield, kilotons: 1	2	3	5	10	20	30	50	100
H= surface burst B = air burst											
Missile and aviation equipment Ракетная и авиационная техника											
Operational-tactical ballistic missiles Баллистические ракеты оперативно-тактического назначения	Н	0,25—0,3	0,6	0,75	0,86	1	1,3	1,6	1,85	2,2	2,8
	В	0,2—0,25	0,68	0,86	0,98	1,15	1,45	1,85	2,1	2,5	3,1
Cruise missiles and jet fighters Крылатые ракеты оперативно-тактического назначения и реактивные истребители	Н	0,3—0,35	0,5	0,63	0,72	0,85	1,1	1,35	1,55	1,85	2,3
	В	0,25—0,35	0,54	0,68	0,78	0,92	1,15	1,5	1,7	2	2,5
Jet bombers and transport aircraft Реактивные бомбардировщики и реактивные транспортные самолеты	Н	0,13—0,15	0,88	1,1	1,25	1,5	1,9	2,4	2,75	3,25	4,1
	В	0,13—0,15	1	1,25	1,45	1,7	2,15	2,7	3,1	3,65	4,6
Piston powered aircraft Поршневые транспортные самолеты, самолеты связи и вертолеты	Н	0,07—0,08	1,4	1,75	2	2,4	3	3,8	4,35	5,15	6,5
	В	0,07—0,08	1,6	2	2,3	2,75	3,45	4,35	5	5,9	7,4
Artillery, small arms, grenade launchers Артиллерийское вооружение, стрелковое оружие и гранатоме											
Ground and nuclear artillery guns Орудия наземной и атомной артиллерии	Н	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,1
	В	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4
Anti-aircraft artillery guns Орудия зенитной артиллерии	Н	0,6—0,9	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4
	В	0,4—0,6	0,36	0,45	0,52	0,61	0,77	0,97	1,1	1,3	1,6
Mortars Минометы	Н	1—2	0,23	0,29	0,33	0,39	0,49	0,62	0,7	0,84	1,0
	В	0,7—0,9	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,1
Rifles, carbines, autos, light machine guns & grenade launchers Винтовки, карабины, автоматы, ручные пулеметы и ручные гранатометы	Н	1—1,2	0,26	0,33	0,38	0,45	0,57	0,71	0,82	0,97	1,2
	В	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4
Heavy-duty machine guns Станковые и крупнокалиберные пехотные пулеметы	Н	0,5—0,7	0,35	0,44	0,5	0,6	0,75	0,95	1,1	1,3	1,6
	В	0,4—0,6	0,36	0,45	0,52	0,61	0,77	0,97	1,1	1,3	1,6
	Н	0,45—0,55	0,4	0,5	0,57	0,68	0,85	1,1	1,25	1,45	1,8

Станковые гранатометы Heavy-duty grenade launchers	В	0,3—0,45	0,45	0,57	0,65	0,77	0,97	1,2	1,4	1,6	2,1	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0	8,5

Name of equipment, weapons or structures Наименование техники, вооружения и сооружений	Вид взрыва (Н — наземный, В — воздушный)	Severe damage pressure, kg/cm2 Давление, выводящее объект из строя, кг/см²	Nuclear yield, kilotons Мощность взрыва, тыс. т						
			1	2	3	5	10	20	30	50	100
H = surface burst B = air burst Fortifications, bridges, landing strips for aircraft, wire and minefields, take-off airfields Фортификационные сооружения, мосты, посадочные полосы											
Trenches (open crevices) - no cover Траншеи (открытые щели) полного профиля без одежды крутостей в средних грунтах	Н	0,4—0,8	0,34	0,43	0,49	0,58	0,73	0,92	1,05	1,25	1,6
	В	0,4—0,8	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,4
Trenches (open crevices) - clothed Траншеи (открытые щели) полного профиля с одеждой крутостей в средних грунтах	Н	1—1,5	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,1
	В	1—1,5	0,19	0,24	0,27	0,32	0,4	0,5	0,58	0,68	0,8
Перекрытые щели Blocked gaps	Н	0,5—1	0,31	0,39	0,44	0,53	0,66	0,84	0,96	1,15	1,4
	В	0,5—1	0,26	0,33	0,38	0,45	0,57	0,71	0,82	0,97	1,2
Блиндажи Dugouts	Н	1—2	0,23	0,29	0,33	0,39	0,49	0,62	0,7	0,84	1,0
	В	1—2	0,17	0,21	0,24	0,28	0,36	0,45	0,52	0,61	0,7
Убежища легкого типа Light duty shelters	Н	2—3	0,18	0,23	0,26	0,31	0,39	0,49	0,56	0,66	0,8
	В	2—3	0,13	0,16	0,18	0,22	0,27	0,35	0,4	0,47	0,5
Убежища тяжелого типа Heavy duty shelters	Н	5—10	0,11	0,14	0,16	0,2	0,25	0,31	0,35	0,42	0,5
	В	5—10	0,08	0,1	0,11	0,13	0,17	0,21	0,24	0,29	0,3
Дерево-земляные огневые и наблюдательные сооружения Observation structures (wood & earth)	Н	1—1,5	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,1
	В	1—1,5	0,19	0,24	0,27	0,32	0,4	0,5	0,58	0,68	0,8
Долговременные сооружения Long term facilities	Н	10—20	0,09	0,11	0,13	0,15	0,18	0,24	0,27	0,32	0,4
	В	10—20	0,06	0,08	0,09	0,1	0,12	0,16	0,19	0,22	0,2
Наплавные мосты из табельных парков Floating bridges	Н	0,8—1,2	0,27	0,35	0,4	0,47	0,59	0,75	0,85	1	1,2
	В	0,35—0,4	0,45	0,57	0,65	0,77	0,97	1,2	1,4	1,6	2,
Низководные деревянные мосты Low water wooden sea walls	Н	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,
	В	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,

Металлические мосты с пролетом длиной 30—45 *м* Metal bridges of 30-45m span	H B	1—2 0,6—0,7	0,23 0,3	0,29 0,38	0,33 0,43	0,39 0,51	0,49 0,65	0,62 0,81	0,7 0,93	0,84 1,1	1, 1,

98

1/2 4*

88

Radii (km) for continuous fire zone in forests in dry weather with average visibility, no snow

Ориентировочные радиусы, *км*, зон возникновения в лесу сплошных низовых пожаров дымке в сухую погоду при отсутствии снежного покрова

H = surface burst

B = air burst

Породный состав леса Type of woods	Вид взрыва	Мощность взрыва, тыс. *т* Nuclear yield									
		1	2	3	5	10	20	30	50	100	200
Хвойный Coniferous	Н	—	—	—	—	—	—	—	—	—	—
	В	—	—	—	—	—	—	—	1,8	2,4	3
Смешанный Mixed	Н	—	—	—	—	—	—	—	—	—	2,4
	В	0,55	0,7	0,8	1	1,3	1,7	2	2,4	3,2	4
Лиственный Deciduous	Н	—	0,5	0,6	0,7	1	1,3	1,5	1,8	2,3	3
	В	0,7	0,8	1	1,15	1,65	1,95	2,25	2,7	3,8	4,4

Примечание. Прочерки означают, что при взрывах данной мощности сплошные низ дут наблюдаться вследствие полного уничтожения леса ударной волной в зоне действия

Dashes indicate that blast wave extinguished fires in this area.

Personnel casualty radii (km)

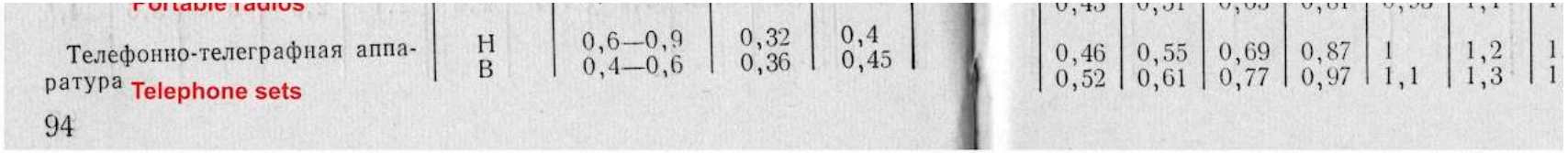
Средние радиусы зон выхода из строя личного состава при взрывах в районе со средним воздухе, *км*

Personnel location Условия расположения личного состава	Вид взрыва H = surface burst B = air burst	Nuclear yield, kilotons Мощность взрыва, тыс. *т* 1	2	3	5	10	20	30	50	100	
Outside Вне укрытий, в автомобилях и бронетранспортерах открытого типа open vehicles	H	0,86	0,98	1,05	1,2	1,4	1,6	1,8	2,1	2,6	3
	B	0,87	1,05	1,2	1,4	1,7	2,1	2,3	2,7	3,4	4
В открытых фортификационных сооружениях Open fortifications	H	0,7	0,78	0,83	0,88	1	1,15	1,25	1,4	1,7	2
	B	0,7	0,85	0,95	1,1	1,4	1,6	1,8	2	2,4	3
В бронетранспортерах закрытого типа In closed APCs	H	0,86	0,96	1	1,05	1,2	1,35	1,45	1,6	1,8	2
	B	0,87	0,98	1,05	1,15	1,3	1,45	1,55	1,7	1,9	2
В танках In tanks	H	0,67	0,75	0,8	0,85	0,95	1	1,05	1,1	1,2	1
	B	0,67	0,72	0,75	0,8	0,85	0,87	0,88	0,9	0,95	1
В блиндажах In dugouts	H	0,18	0,23	0,26	0,32	0,4	0,53	0,62	0,75	1	
	B	0,11	0,14	0,17	0,2	0,25	0,32	0,37	0,43	0,55	
В убежищах легкого типа Laying down in shelters	H	0,14	0,17	0,2	0,23	0,3	0,4	0,46	0,55	0,75	
	B	0,08	0,1	0,12	0,14	0,18	0,23	0,26	0,31	0,4	

Наименование техники, вооружения и сооружений Name of equipment, weapons and structures	Вид взрыва (Н — наземный, В — воздушный)	Destruction pressure Давление, выводящее объект из строя, кг/см² kg/cm2	Мощность взрыва, тыс. т Nuclear yield, kilotons						
			1	2	3	5	10	20	30	50	1
H = surface burst B = air burst											
Medium and heavy tanks Тяжелые и средние танки	Н	2—4	0,17	0,21	0,24	0,28	0,36	0,45	0,52	0,61	0,
	В	0,9—1,1	0,21	0,27	0,31	0,37	0,46	0,58	0,67	0,79	1
Light tanks or SPGs Легкие танки и самоходные артиллерийские установки	Н	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,
	В	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1,
Бронетранспортеры **APCs**	Н	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1,
	В	0,4—0,55	0,38	0,48	0,55	0,65	0,82	1,05	1,2	1,4	1,
Грузовые автомобили и автоцистерны **Trucks / tank cars**	Н	0,4—0,5	0,42	0,53	0,61	0,72	0,9	1,15	1,3	1,55	1,
	В	0,25—0,35	0,54	0,68	0,78	0,92	1,15	1,5	1,7	2	2,
Автобусы и специальные автомобили с кузовами автобусного типа **Buses etc**	Н	0,2—0,3	0,6	0,75	0,86	1	1,3	1,6	1,85	2,2	2,
	В	0,2—0,3	0,63	0,79	0,91	1,1	1,35	1,7	1,95	2,3	2,
Гусеничные артиллерийские тягачи **Tracked artillery**	Н	0,45—0,55	0,4	0,5	0,57	0,68	0,85	1,1	1,25	1,45	1,
	В	0,25—0,35	0,51	0,64	0,73	0,87	1,1	1,4	1,6	1,9	2,
Гусеничные тракторы **Tracked tractors**	Н	0,6—0,7	0,34	0,43	0,49	0,58	0,73	0,92	1,05	1,25	1,
	В	0,4—0,5	0,39	0,49	0,56	0,67	0,84	1,05	1,2	1,45	1,
Радиолокационные станции типа СОН-4 **SON-4 radar**	Н	0,35—0,5	0,43	0,54	0,62	0,73	0,93	1,15	1,35	1,6	2
	В	0,3—0,4	0,5	0,63	0,72	0,85	1,1	1,35	1,55	1,85	2,
Радиолокационные станции типа П-12М и П-15 **P12M and P15 radar**	Н	0,15—0,2	0,75	0,95	1,1	1,3	1,6	2	2,35	2,8	3.
	В	0,15—0,2	0,85	1,1	1,25	1,45	1,85	2,3	2,65	3,15	4
Радиолокационные станции типа ПРВ-10 и П-20 **PRV10 and P20 radar**	Н	0,12—0,18	0,9	1,15	1,3	1,55	1,95	2,45	2,8	3,3	4.
	В	0,12—0,18	0,96	1,2	1,4	1,65	2,05	2,6	3	3,55	4.
Войсковые автомобильные радиостанции (повреждение кузовов и антенных устройств) **Military vehicle radios**	Н	0,2—0,3	0,6	0,75	0,86	1	1,3	1,6	1,85	2,2	2
	В	0,2—0,3	0,63	0,79	0,91	1,1	1,35	1,7	1,95	2,3	2
Переносные радиостанции **Portable radios**	Н	1,1—1,3	0,25	0,32	0,36	0,43	0,54	0,68	0,78	0,93	1
	В	0,6—0,7	0,3	0,38	0,43	0,51	0,65	0,81	0,93	1,1	1

Бронетанковая и автотракторная техника — Military vehicles

Радиолокационная техника и средства связи — Radar technology



Portable radios											
Телефонно-телеграфная аппаратура Telephone sets	Н В	0,6—0,9 0,4—0,6	0,32 0,36	0,4 0,45	0,46 0,52	0,55 0,61	0,69 0,77	0,87 0,97	1 1,1	1,2 1,3	1 1

94

Above: Secret "For Official Use" and individually numbered Russian nuclear defense manual (169 pages long) entitled "КРАТКИЙ СПРАВОЧНИК ПО БОЕВЫМ СВОЙСТВАН ЯДЕРНОГО ОРУЖИЯ" [= "A Brief Guide to the Combat Properties of Nuclear Weapons"] states: "Ядерное оружие обладает значительно большей разрушительной силой по сравнению с обычными видами оружия, но существуют простые и надежные методы защиты от него." [= Nuclear weapons have significantly greater destructive power than conventional weapons, but there are simple and reliable methods of protecting against them.]" It adds: "В этом руководстве представлен краткий обзор ядерного оружия, средств и методов защиты от ядерной угрозы, а также инструкции о том, как действовать в случае применения ядерного оружия." [= "This guide provides a brief overview of nuclear weapons, the means and methods of defending against a nuclear threat, and instructions on what to do in the event of a nuclear weapon being used."] The manual contains data tables on damage to Russian military equipment based on Russian nuclear weapons tests, as shown above. This proves Russian preparation for tactical nuclear war is true.

Таблица 23

Радиусы зон, *км*, в которых на антеннах высотой более 10 *м* и воздушных линиях связи при наземных и низких воздушных ядерных взрывах наводится напряжение, превышающее 10 и 50 *кв*

Radii in km for EMP in 10m antennas

Мощность взрыва, тыс. *т*	Наводимое напряжение, *кв*	
	10	50
1	2	1
10	2,5	1,3
100	3	1,5
1000	3,3	1,7

Nuclear yield

Induced voltage, kV

kilotons

(Surface and low air bursts)

Радиусы зон, *км*
между жилой
неэкранированно
линии длиной
и землей при
и низких воздуш
взрывах наводитс
превышающее

Мощность взрыва, тыс. *т*	Навод
	10
1	1,1
10	1,6
100	2
1000	2,4

Nuclear yield

Induc

kilotons

EMP in >1 km long unc
unshielded residential

КРАТКИЙ СПРАВОЧНИК ПО БОЕВЫМ СВОЙСТВАН ЯДЕРНОГО
Brief Guide to the Combat Properties of Nuclear Weapons), 2nd e
Chapter 5: Electromagnetic Pulse, p71, tables 23 and 24.

Anton Gerashchenko
@Gerashchenko_en · **Follow**

"For Russia, the strategic defeat means the end of its statehood and thousand-year history. Then the question arises - why should we be afraid? Isn't it better to go to the end?" - Putin

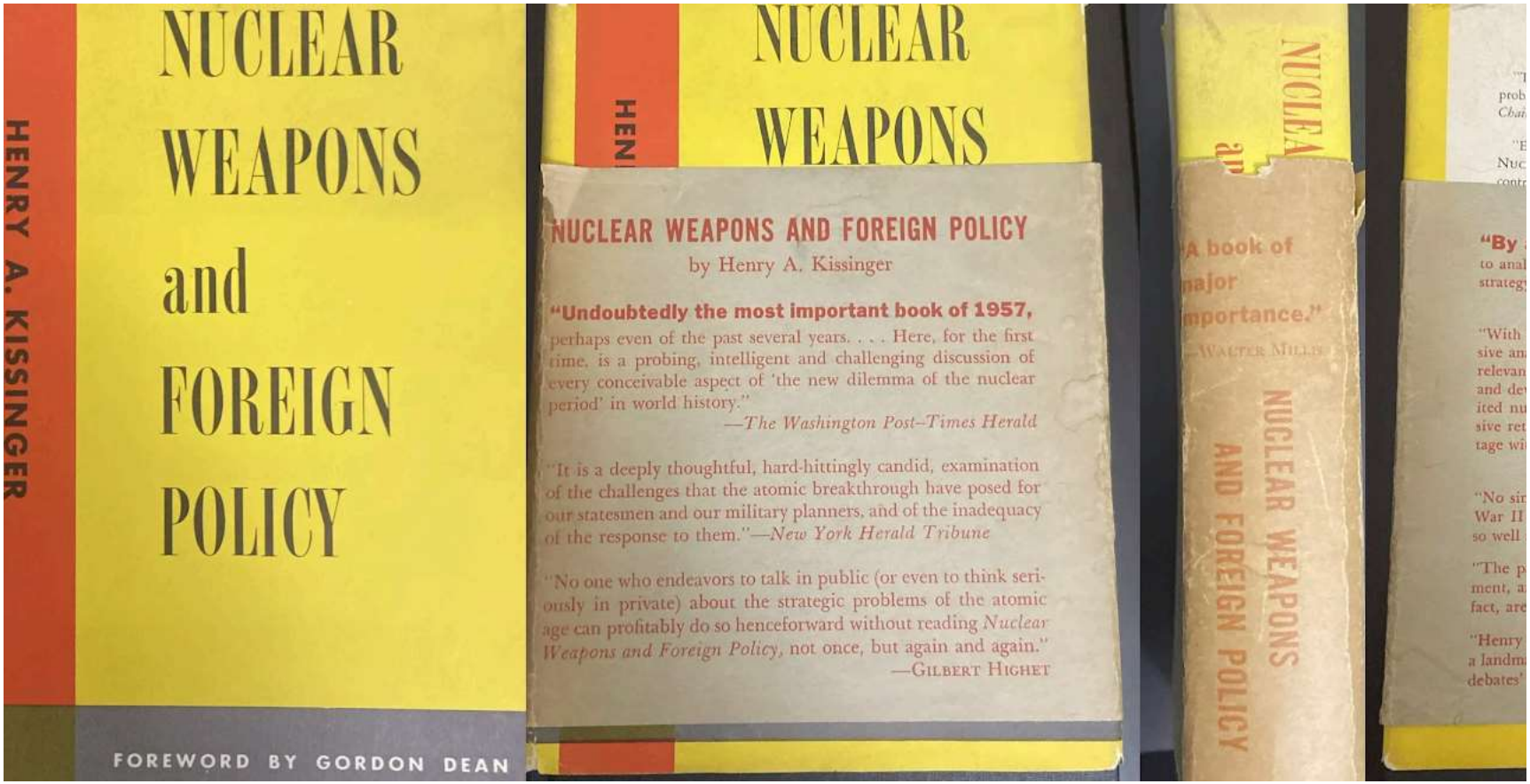
He says it's logical.
Following formal logic, that means the end of Putin.

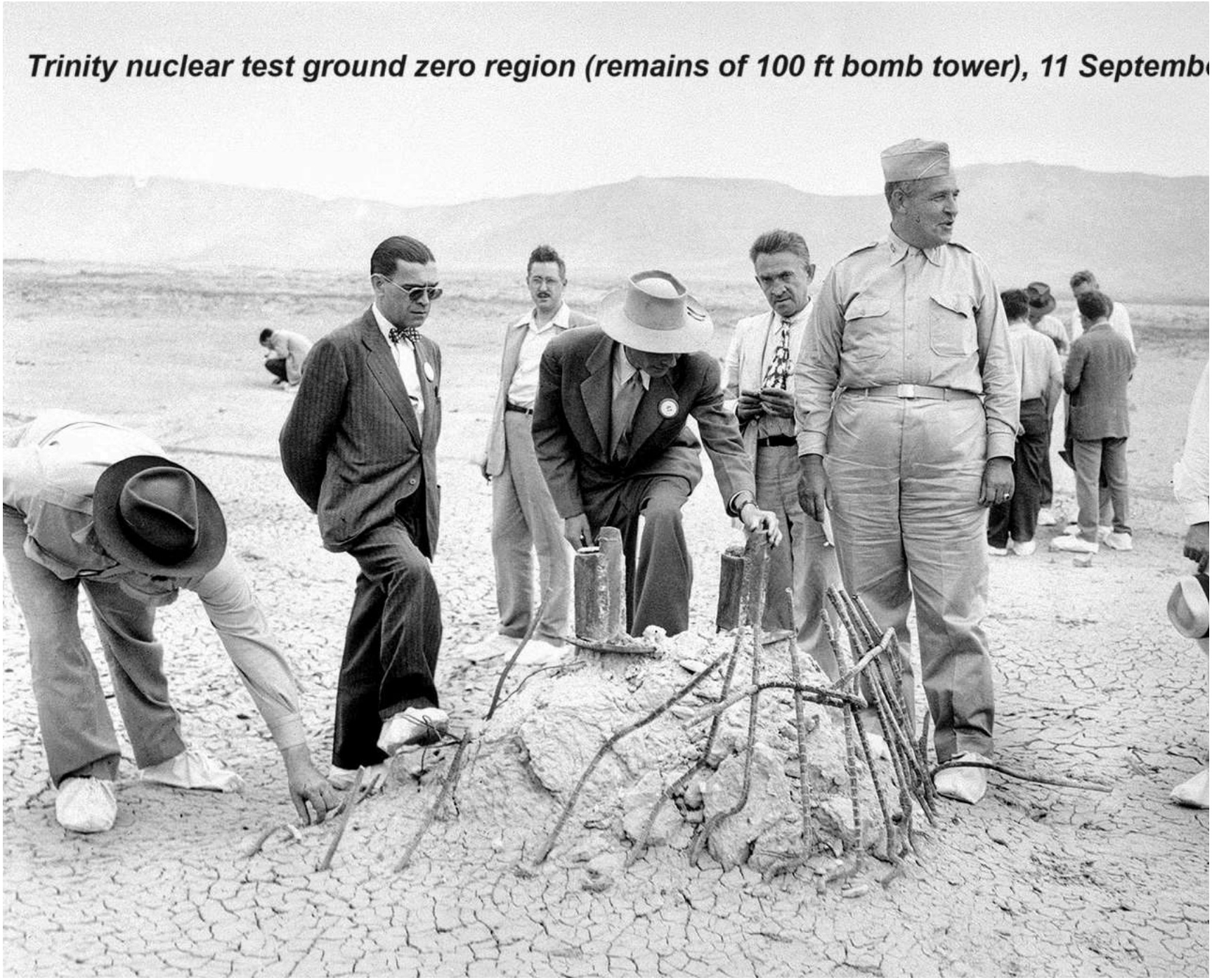
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—Gilbert Highet
NUCLEAR WEAPONS
AND FOREIGN POLICY


Trinity nuclear test ground zero region (remains of 100 ft bomb tower), 11 Septembe

High Power Laser and Particle Beams, 2024, 36: 076003

Simulation research on energy distribution of light radiation from nuclear explosion

Han Xiaoxiang[1], Li Jun[1], Zhang Xin[1], Yuan Lin[1], Liu Yang[1], Wang Boyu[1,2]

(1. *School of Science, Xi'an Polytechnic University, Xi'an* 710048, *China*;
2. *Institute of Nuclear Science and Technology, Xi'an Technological University, Xi'an* 710021, *China*)

Abstract: Light radiation is a crucial component of the energy produced in nuclear explosion, making the study of its space distribution highly significant. This paper presents the derivation of a formula for computing thermal energy induced by the light radiation of a nuclear explosion. The derivation integrates the fireball development laws with the transient energy dynamics of light radiation. The resultant formula exhibits a dependency on several factors, including the height of the explosion, the yield of the explosion, atmospheric attenuation coefficients, as well as the radius and temperature of the fireball. By creating diverse maps and adjusting pertinent parameters, simulating calculations are conducted to elucidate the distribution patterns of the transient thermal energy from nuclear explosion light radiation. Furthermore, the burn injury grading standards are incorporated into the simulation by introducing a search function that autonomously categorizes the injury grading zones on the virtual map. What's more, neural networks are employed to train the numerical models, aiming to discern the correlation between the parameters associated with nuclear explosions and the injury grading radius on the map. This innovative approach enables direct prediction of the injury grading radius based on nuclear explosion parameters, thus significantly shortens the calculation process.

Thermal transmission

$$\tau = e^{-\mu r} + 0.32(\mu r)^{1.8} e^{-0.88\mu r}$$

中国人民解放军总装备部军事训练教材编辑工作委员会. 核爆炸物理概论[M]. 北京: 国防工业出版社, 2003. (The Military Training Textbook Editing Committee of the General Equipment Department of the People's Liberation Army of China. Introduction to the physics of nuclear explosions[M]. Beijing: National Defense Industry Press, 2003)

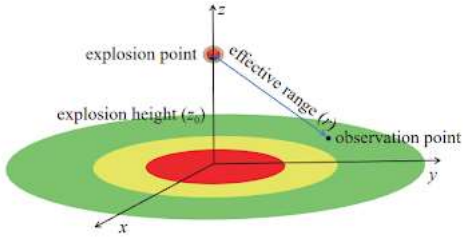
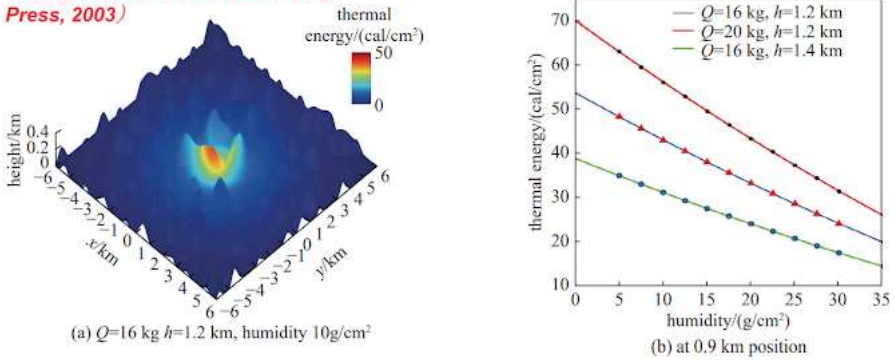


Fig. 1 Thermal radiation model of point source explosion



(a) Q=16 kg h=1.2 km, humidity 10g/cm³ (b) at 0.9 km position

Fig. 7 Relationship between humidity and thermal energy of nuclear explosion

表 1 光辐射对生物的烧伤伤情分级

Table 1 Grades for classification of biological burns ca

grading rules of injury severity in light radiation burns	ratio of burn area	thermal energy value of light radiation/(cal·cm⁻²)	
minor burn	<10%	5.01～14.95	Systemic s result in lo
moderate burn	10%～20%	14.95～30.14	Systemic s but the inju
severe burn	20%～50%	30.14～50.17	Systemic s the early st several day injuries ca effectivene
extremely severe burn	>50%	>50.17	In the early appear earl treatment. effectivene

Figure 7(a) shows thermal radiation fo burst altitude and humidity of 10 g/cm the relationship between humidity and nuclear explosion.

The thermal energy relationship curve centered at 0.9 km shows that as the h increases, a large amount of water vap shields the infrared radiation appreciа

Table 1

data sources: 王坚, 李路翔. 核武器效应 理工大学出版社, 1993. (Wang Jian, Li weapons effects and protection[M]. Institute of Technology Press, 1993) a 杰, 等. BLEVE 火球热辐射及其影响评价 与环保, 2007, 33(5)：23-24. (Jiang Wei al. The introduction of the BLEVE firel and its impact assessment model[J]. I

Increasing humidity from the 5 g/cm2 in Nevada desert to 30 g/cm2 in a river or coastal based city will halve the thermal energy received at 900 metres. (Never mind the effect on increasing the energy needed to ignite paper, wood, etc.)

and its impact assessment model[J]. Environmental Protection, 2007, 33(5).

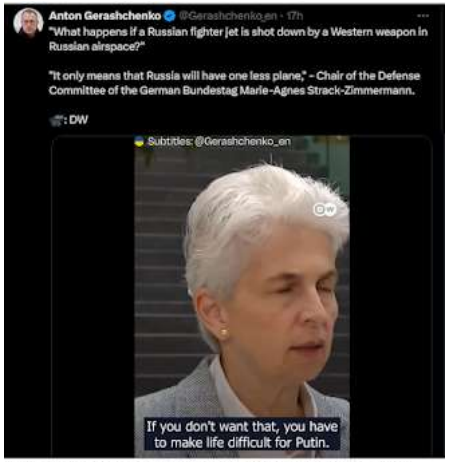
How low yield nuclear weapons can eliminate collateral damage

Glasstone, Effects of Nuclear Weapons 1957:

Peak overpressure in psi for severe damage (50% collapse probability / Type A damage), allowing for blast duration effect data: Fig 6.41b p253, Fig 6.41c p255, using surface burst overpressure conversion curve in Fig 3.94a p109

Structure	1 kt	20 kt	1 Mt
Steel truss bridge (blast normal to axis) 150-250 ft span	70	35	18
" " 250-550 ft span	55	23	15
Multistory concrete frame city building, light walls	55	23	15
Multistory steel frame city building, light walls	35	16	12
Diesel loco, side-on	53	30	16
Railroad rolling stock	16	8.3	6.1
Automobiles	36	18	12
Forests (175 trees/acre) and 200-500 ft radio/TV transmitting towers	9	5	4

Peak water pressure to sink ships (Fig. 6.41c and 5.52) based on Baker shot	**4000**	**2500**	**1500**



https://x.com/Gerashchenko_en/status/1797988759369318520
A little like Hitler's claim that one kick and Russia will "collapse like a rotten old barn door". Maybe, maybe not. Underestimating the enemy led to a failure of credible deterrence & two world wars.



https://x.com/Gerashchenko_en/status/1798075709916873021
Russian State TV Channel 1: 4 June 2024. ("Proxy movements" = Western Russian-supporting "arms control and disarmament etc.")

Above: Russian State TV Channel 1 on the nuclear threat, 4 June 2024 (https://x.com/Gerashchenko_en/status/1797914275572588979, click here). This is not a matter of unthinkable escalation or a knockout blow that will disarm Russia entirely (by firing all its weapons at the West!). It is a matter of coercive threats, which may or may not be accompanied by "demonstration strikes". Putin knows that unlike former USSR territories (e.g. Ukraine) which have heavy duty shelters in cities, the West doesn't have such civil defense to make its nuclear deterrent credible, so there is an exploitable asymmetry for Putin. This Russian state TV Channel 1 "propaganda" is Russian language: it's not aimed at the West, but at Russians, to prepare the road for possible nuclear warfare with the West. This is not about the usual image of an escalatory



https://x.com/Gerashchenko_en/status/1797914275572588979

WWIII, but about establishing Russian hegemony, by making the West back down! As in the 1930s, popular media "selective journalism" (mainstream fake/fashionable fairy tale news) ignores real threats, by using the trick of hyping up deception (knockout blows, escalation, etc.) to make reality appear "unthinkable".

В 1960-х годах в СССР развернулись работы по созданию тяжелой межконтинентальной баллистической ракеты Р-36, которая впоследствии стала основой нашего ракетно-ядерного щита. Для оснащения этой ракеты в 1962 г. в РФЯЦ-ВНИИЭФ был создан и успешно испытан уникальный термоядерный заряд сверхбольшой мощности. В его теоретическую разработку наибольший вклад внес Б.Н. Козлов, среди конструкторов нужно отметить В.А. Белугина и И.Г. Иванова. В 1966 г. ВНИИЭФ провел успешное испытание заряда второго поколения, в котором повышение удельной мощности почти вдвое было достигнуто за счет увеличения вклада реакций деления в термоядерном модуле. В дальнейшем эти результаты были использованы при создании новых изделий третьего поколения.

За успешное решение проблемы безопасности эксплуатации ядерных зарядов второго поколения были удостоены Государственных премий СССР 11 сотрудников ВНИИЭФ.

In the 1960s, the USSR began wor
intercontinental ballistic missile R
became the basis of our nuclear m
rocket, in 1962, a unique ultra-high
charge was created and successfu
VNIIEF. B.N. Kozlov made the grea
theoretical development, among th
and I.G. Ivanov should be noted. In
successful test of the second gen
increase in specific power was alm
an increase in the contribution of t
thermonuclear cycle. In the future,
create new products of the third g

11 VNIIEF employees were awarde
for the successful solution of the p
operation of second-generation nu

*Translation from A. A. Greshilov et
p171 (section 2.7: Second Generat*

К 1957 г. на предприятиях Минсредмаша было наработано достаточно большое количество урана-235, поэтому стало возможным создание атомного заряда имплозивного типа с применением в качестве ядерного горючего только урана-235. Этот заряд был успешно испытан в сентябре 1957 г., после чего произошла передача его на вооружение в составе боевых частей.

В 1953–1954 гг. началась разработка атомного заряда для торпеды Т-5, имевшей стандартный калибр. Требовалось существенно по сравнению с предыдущими разработками РДС-4 сократить габариты заряда. Разработчикам в КБ-11 предстояло решить непростую задачу. По результатам трех полигонных испытаний была выбрана конструкция заряда для торпеды. Этот заряд мощностью 3,5 кт 21 сентября 1955 г. был испытан в составе боевого зарядного отделения (БЗО) торпеды Т-5 в подводном положении в районе архипелага Новая Земля.

By 1957, a sufficiently large amount of uranium
the enterprises of the Ministry of Agriculture, so
implosive type atomic charge using
only uranium-235 as nuclear fuel. This charge w
tested in September 1957, after which it was tra
equipment as part of combat units.
In 1953-1954, the development of an atomic cha
which had a standard caliber. It was necessary
dimensions compared to previous RDS-4 devel
developers at KB-11 had to solve a difficult task
field tests, the design of the charge for the torp
charge is on September 21st In 1955, it was test
charging compartment (BZO) of the T-5 torpedo
the area of the Novaya Zemlya archipelago.

*- Translation from: A. A. Greshilov, Nuclea
(section 2.9: Chronology of the improvem*



Russian RN-32 - aerial tactical-strategic thermonuclear bomb for fighter-bomber delivery
Developer: FSUE "RFNC-VNIITF" (Snezhinsk, Chelyabinsk region)
Chief designers: L. F. Klopov & O. N. Tikhane, 1970-1980
Source: Museum of the Federal State Unitary Enterprise "RFNC-VNIITF", Snezhinsk, Russia

ABOVE: Russian project 49 dual-primary thermonuclear weaponeer Trutnev has an officially "proatom.ru"-published technical history of the design of the Russian nuclear weapons (which differ from UK-USA designs fundamentally) **here (extracted from Russian "Atomic Strategy" No. 18, August 2005)**: "the problem of ensuring spherically symmetric compression of the secondary module was radically solved, since the time of “symmetrization” of the energy around the secondary module was much less than the time of compression of this module. ... The first two-stage thermonuclear charge, designated RDS-37, was developed in 1955 and successfully tested on November



Ukraine NTsAOMU Museum: Russian R-36M ICBM warhead

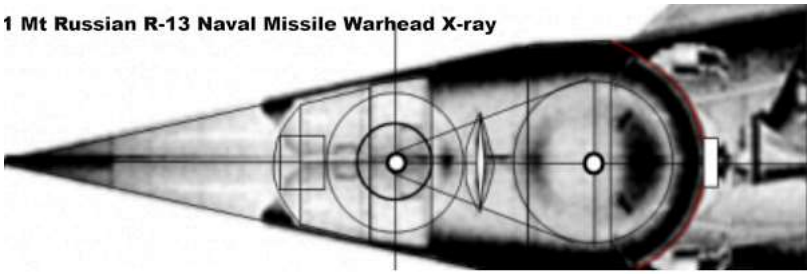
Diagrams: Yu. M. Nikolaev & S. D. Panin, Fundamentals of designing solid-fuel guided ballistic missiles (part

22, 1955. The energy release of the charge in the experiment was 1.6 Mt, and since for safety reasons at the Semipalatinsk test site the charge was tested at partial power, the predicted full-scale energy release of the charge was ~ 3 Mt. The energy release amplification factor in RDS-37 was about two orders of magnitude, the charge did not use tritium, the thermonuclear fuel was lithium deuteride, and the main

fissile material was U-238. ... Particular attention should be paid to the works of 1958. This year, a new type of thermonuclear charge, “product 49,” was tested [the double-primary H-bomb], which was the next step in the formation of a standard for thermonuclear charges (its development was completed in 1957, but testing on the SIP did not take place). The ideologists of this project and the developers of the physical charge circuit were Yu. N. Babaev and I. The peculiarity of the new charge was that, using the basic principles of the RDS-37, it was possible to: • significantly reduce overall parameters due to a new bold solution to the problem of transfer of X-ray radiation, which determines implosion; • simplify the layered structure of the secondary module, which turned out to be an extremely important practical decision. According to the conditions of adaptation to specific carriers, “product 49” was developed in a smaller overall weight category compared to the RDS-37 charge, but its specific volumetric energy release turned out to be 2.4 times greater. The physical design of the charge turned out to be extremely successful; the charge was transferred to service and subsequently underwent modernization associated with the replacement of primary energy sources. In 1958, together with Yu.N. The Babaevs managed to develop 4 thermonuclear charges, which were tested on the field in 7 full-scale tests, and all of them were successful. This work was practically implemented within 8 months of 1958. All of these charges used a new circuit, first introduced in Product 49. Their energy release ranged from 0.3 to 2.8 Mt. In addition, in 1958, under my leadership M. V. Fedulov also developed the lightest thermonuclear charge at that time according to the “product 49” design, which was also successfully tested. Work on the miniaturization of thermonuclear weapons was new at that time, and it was met with a certain misunderstanding and resistance. ... One of the well-known pages in the history of work on thermonuclear weapons of the USSR is the creation of a superbomb - the most powerful thermonuclear charge. I will dwell on some points of this development. ... Among the features of this charge, it should be noted that the large volume of the charge (due to its high energy release) required significant amounts of X-ray energy to carry out implosion. The developed nuclear charges did not satisfy this condition, and therefore, a previously developed two-stage thermonuclear charge with a relatively low energy release was used as the primary source of the “super-powerful charge”. This charge was developed by me and Yu. N. Babaev. ... In the next project (a return to the untested 1958 system) that I supervised, every effort was made to ensure near-perfect implosion symmetry. This brilliant work led to success, and in 1962, the problem of implementing thermonuclear ignition was solved in a special device. In other full-scale tests that followed, this success was consolidated, and as a result, thermonuclear ignition provided the calculated combustion of the secondary module with an energy release of 1 Mt. My co-authors in this development were V.B. Adamsky, Yu.N. Babaev, V.G. Zagrafov and V.N. Mokhov. ... This principle has found a variety of applications in the creation of fundamentally new types of thermonuclear charges, from special devices for the use of nuclear explosions for peaceful purposes to significant military applications."

This is the basis for the Russian isentropic-compressed pure fusion secondary (99.98% clean) neutron bomb:

“In 1966, VNIIEF conducted a successful test of the second generation charge, in which an almost doubling of the power density was achieved by increasing the contribution of fission reactions in the thermonuclear module. These results were subsequently used to create new third-generation products.” - A. A. Greshilov, N. D. Egupov and A. M. Matushchenko, *Nuclear shield* (official Russian nuclear weapons history), 2008, p171 (linked here: https://elib.biblioatom.ru/text/greshilov_yaderny-schit_2008/p171/).
(Note that first double-primary Project 49 Russian test on 23 February 1958 was rapidly weaponised as the 1364 kg 8F12/8F12N warhead for the 8K63 missile in 1959, according to **http://militaryrussia.ru/blog/index-0-5.html** which also gives a table of yields and masses of other Russian warheads: the 2.3 megaton warhead 8K15 for the 8K65 missile had a mass of 1546 kg; the 5 megaton 8F116 warhead for the 8K64 and 8K65 missiles had a mass of 2175 kg; the 6 megaton 8F117 for the 8K64 and other missiles had a mass of 2200 kg, etc.)





http://www.gpad.ac.ru/info/contributions/IIkaev.pdf

1. Solid thermonuclear fuel – lithium deuteride
2. Gold shell
3. Inert shell
4. Low Z material
5. Shell made of large Z material
6. Medium Z Layer
7. Layer of low-Z material

(**For the essential so-called "overkill" background or Sir Slim's "the more you use, fewer you lose" success formula for winning in Burma against Japan - where physicist Herman Kahn served while his friend Sam Cohen was calculating nuclear weapon efficiencies at the Los Alamos Manhattan Project, which again used "overkill" to convince the opponent to throw in the towel - please see my post on the practicalities of really DETERRING WWIII linked here**.)





https://www.mk.ru/politics/2022/08/17/yadernye-snaryady-dlya-artillerii-vpervye-pokazali-na-forume-armiya2022.html "... in the Patriot Park near Moscow, small-sized nuclear weapons were presented to the general public for the first time. Artillery shells are presented at the stand of Rosatom, which is responsible for the country's nuclear complex." 2.5 kt shell RD4-01 for the D-20 howitzer with caliber of 152 mm, the most common calibre in Russian army. The first nuclear artillery charge of 203 mm is the 2 kt shell RD5-01, fired by 2S7M Malka and SPG 2S7 "Pion" with 45 km range. PHOTOS BY PHILIP KOBELEV

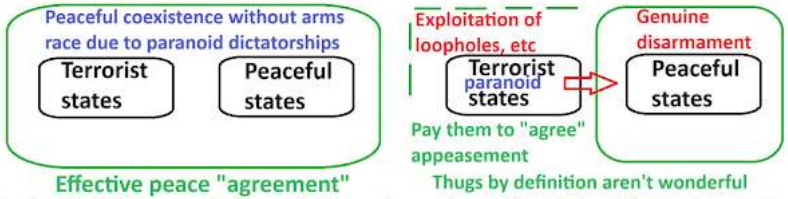
https://bloknot.ru/glavnaya/takticheskaya-yadernaya-vojna-kuda-chem-i-kogda-udarit-rossiya-i-kakim-budet-otvet-ssha-990862.html : "At the Army-2022 forum, Rosatom presented low-power nucle
The smallest projectile with a nuclear warhead RD4-1 for 152 mm caliber artillery. has a capacity of 2.5 kilotons of TNT, and the largest RD5-1 of 203 mm caliber is only 2 kilotons. The 152 mm c
army. This is exactly the caliber of the 2A65 Msta-B howitzers. It is designed to destroy artillery batteries and destroy defensive structures. The Giatsint-S guns have the same caliber."





SET THEORY OF PEACE AGREEMENT

What's needed: What happens:



Effective peace "agreement" Thugs by definition aren't wonderful

Herbert York (Livermore designer of light pusher and case H-bombs) on "The Nuclear Age" TV show (1989): use "police" to ban war, in analogy to the way they allegedly ban crime!

Problem: analogy in practice would be for the "police" to end up nuclear-armed ··· n-war.

Then you "improve" that situation by deciding to DETER.

At this point, you have only re-invented the wheel: nuclear deterrence under a new name.

The prob and solution remain the same. Paper doesn't deter thugs in the real world mate.

Simply yelling "F==ing Nazi" at someone like Kahn who tells you this doesn't solve anything

Except if you have deep paranoid delusions and you imagine dictatorships genuine utopias

18 February 1950 Picture Post H-bomb



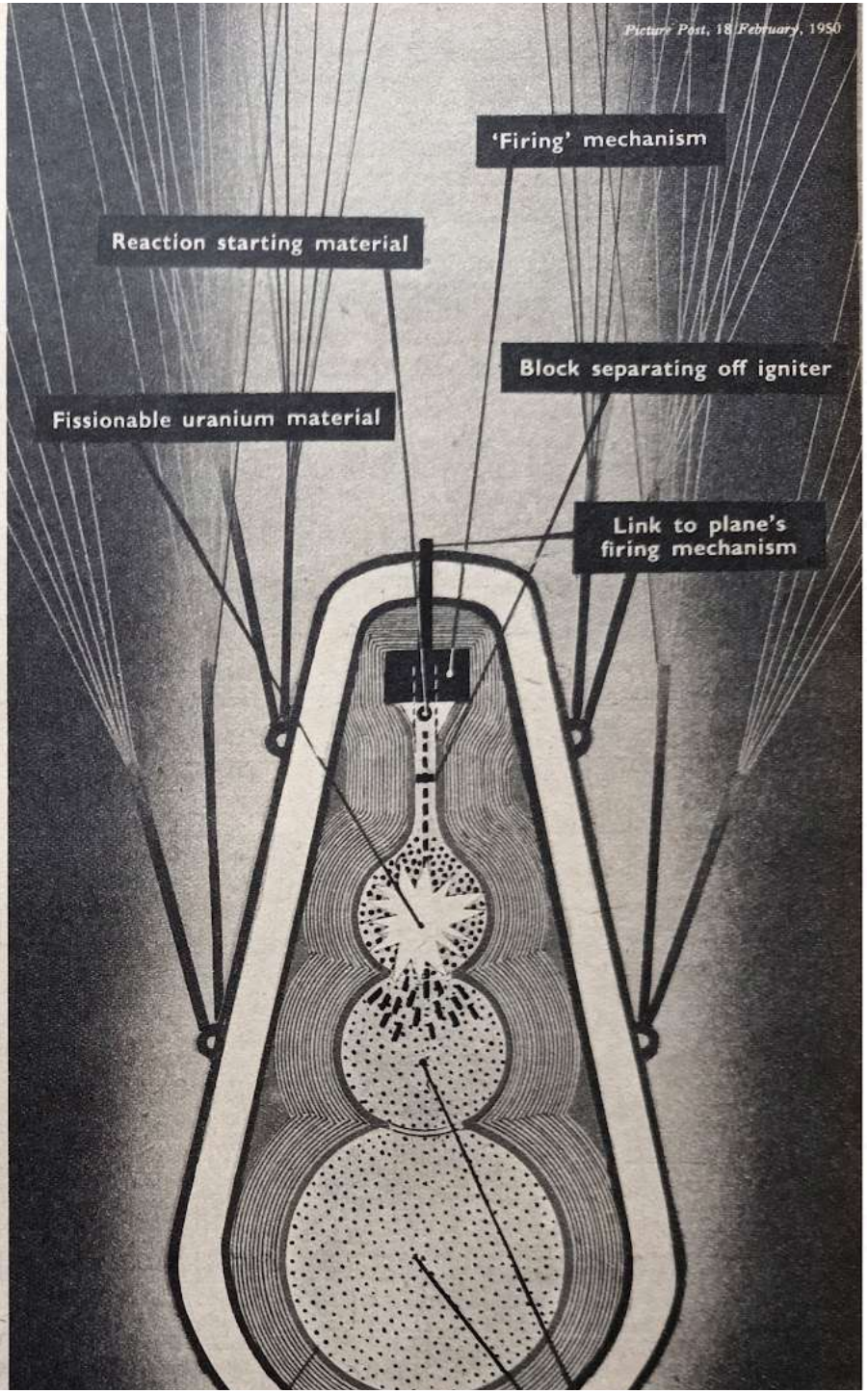
"Well, gentlemen, we are agreed, then, that the trivial risk of dissolving the solar system must be subordinated to the higher interests of scientific truth and our researches will continue?"

A cartoon by Osbert Lancaster from the Daily Express.

CAN MAN SURVIVE the Hydrogen Bomb?

ON Friday, January 13 of this year, the London *Times* printed a down-the-page report from their Washington correspondent under the heading 'A Hydrogen Atomic Bomb.' This was the first news to reach the people living in Britain that it was possible to create a hydrogen bomb which could be made a thousand times more powerful than the older type of uranium atomic bombs which were used at Hiroshima and Nagasaki. The report laconically mentioned that "scientists did not expect it to set the atmosphere on fire."

But calculations about such a 'super bomb' had been published in



Vienna by the Austrian physicist, Hans Thirring, as long ago as 1946, in his book, 'The History of the Atom Bomb.' In a later book on 'Atom Warfare and World Politics,' he stressed another danger which faces Man: the possibility of warfare conducted with lethal radio-active dusts—by-products of all atomic piles.

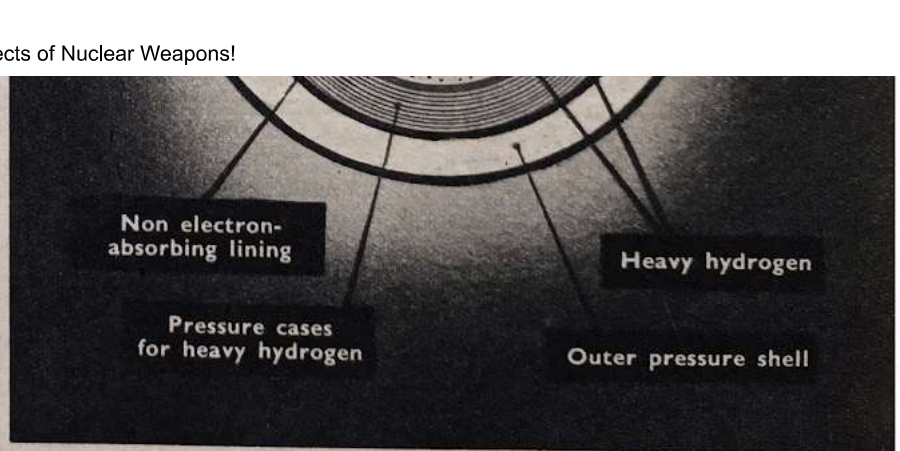
What is the truth of the matter? We now know that the manufacture of a hydrogen super bomb is possible. Truman has given the order for work to go ahead on it. There are many difficulties, but none of them is insuperable.

Early in the 1930's, Joliot Curie and his wife Irene, daughter of M. and Mme. Curie, who discovered radium, found that when beryllium was bombarded with an alpha particle (the nucleus, centre-piece, of an atom of the gas helium), a secondary radiation was set up in the beryllium. This secondary radiation knocked out particles from paraffin wax and other substances which contained hydrogen. This was the start of the story.

The British scientists Cockroft and Walton demonstrated that, using a beam of protons (particles of atoms) of only 120,000 volts energy, they could disintegrate the lithium atom nucleus to produce two nuclei of helium, and Walton and Dee confirmed this in 1932. It was on these experiments that Thirring based his calculations for the much-publicised calculations for the lithium hydride bomb. The possibility of the hydrogen to helium change was soon demonstrated, and Max Born discussed it in his book, 'The Restless Universe,' published in 1935.

The quibblings of scientists who state that the hydrogen super bomb is impossible are on a level with those about the uranium bomb being 'impossible.' It is true that there is a great difference between laboratory

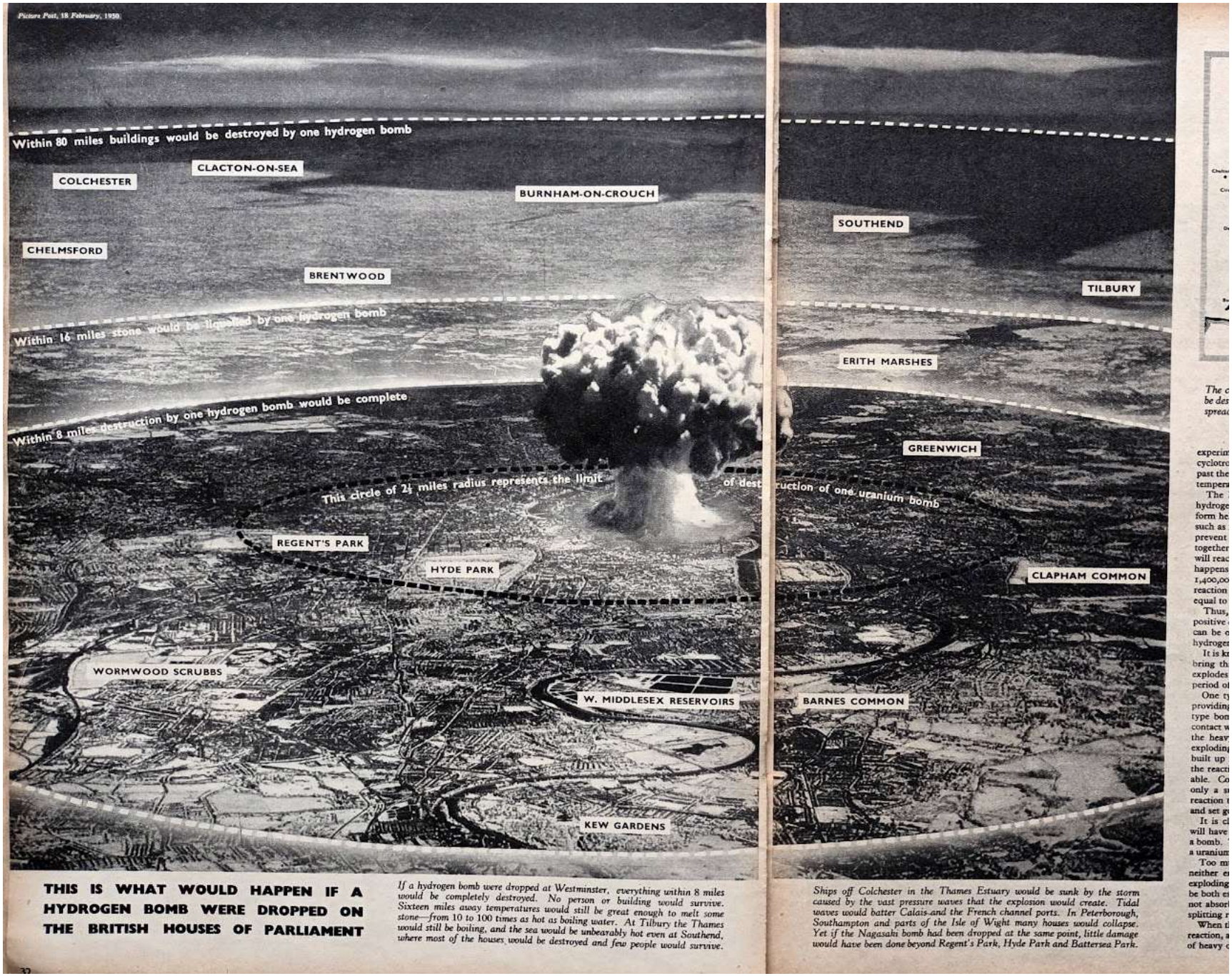
Continued overleaf



How the H-Bomb Works

This diagram has been drawn under the supervision of atomic scientists. They believe this is how the H-Bomb will work. A large uranium bomb could only ignite a small quantity of heavy hydrogen. In a larger quantity the enormous temperatures and pressures necessary to start off the hydrogen-to-helium change would be dissipated too quickly. To overcome this it must go off in stages separated by a millionth part of a second. The uranium bomb sets off the reaction in a small mass of heavy hydrogen. This in turn breaks through the weakest part of its shell to ignite the larger quantity needed to make the super bomb. Walls of each part are spherical to resist the great pressure for the split second the explosive chain takes for its course.

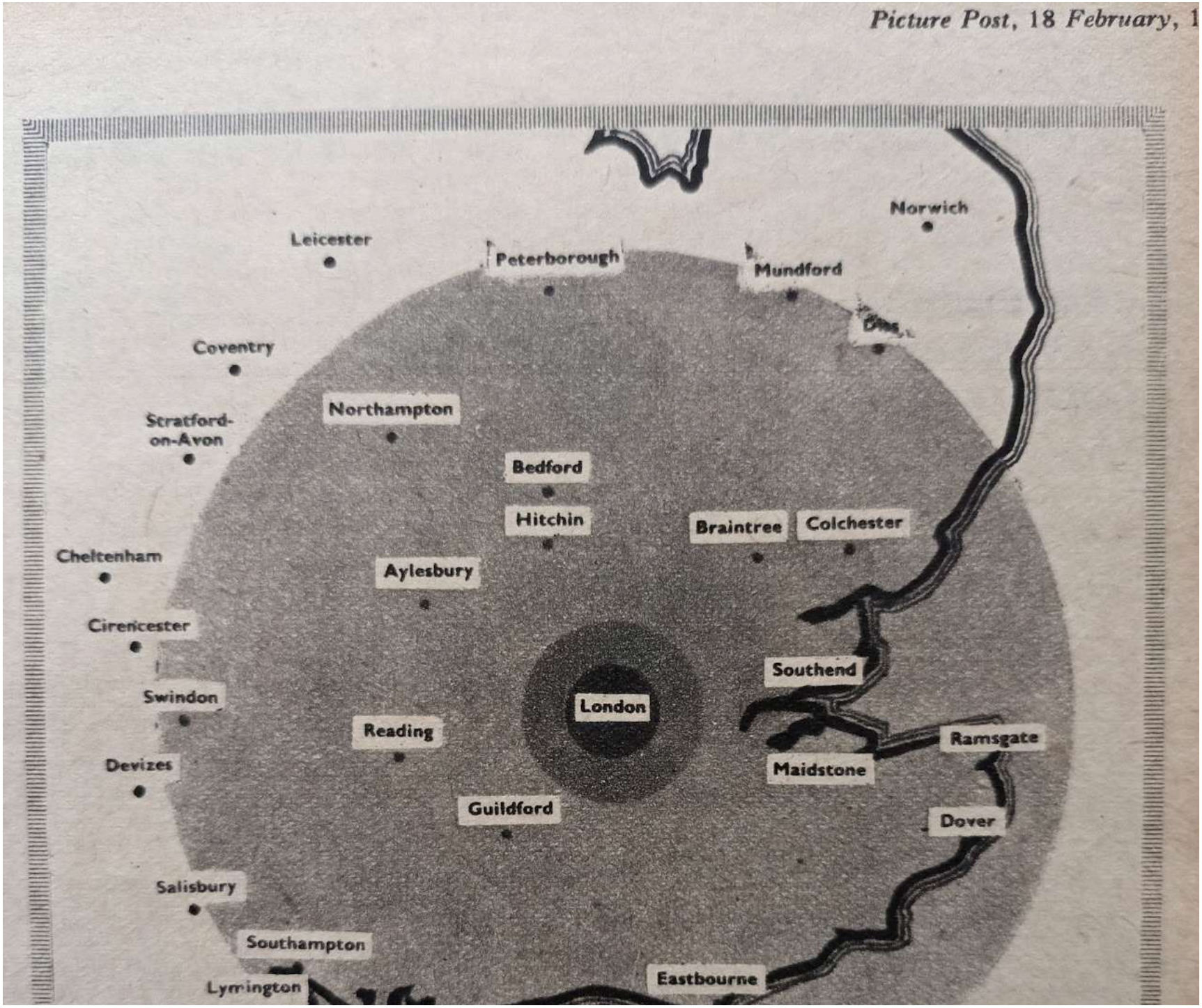
Picture Post, 18 February, 1950

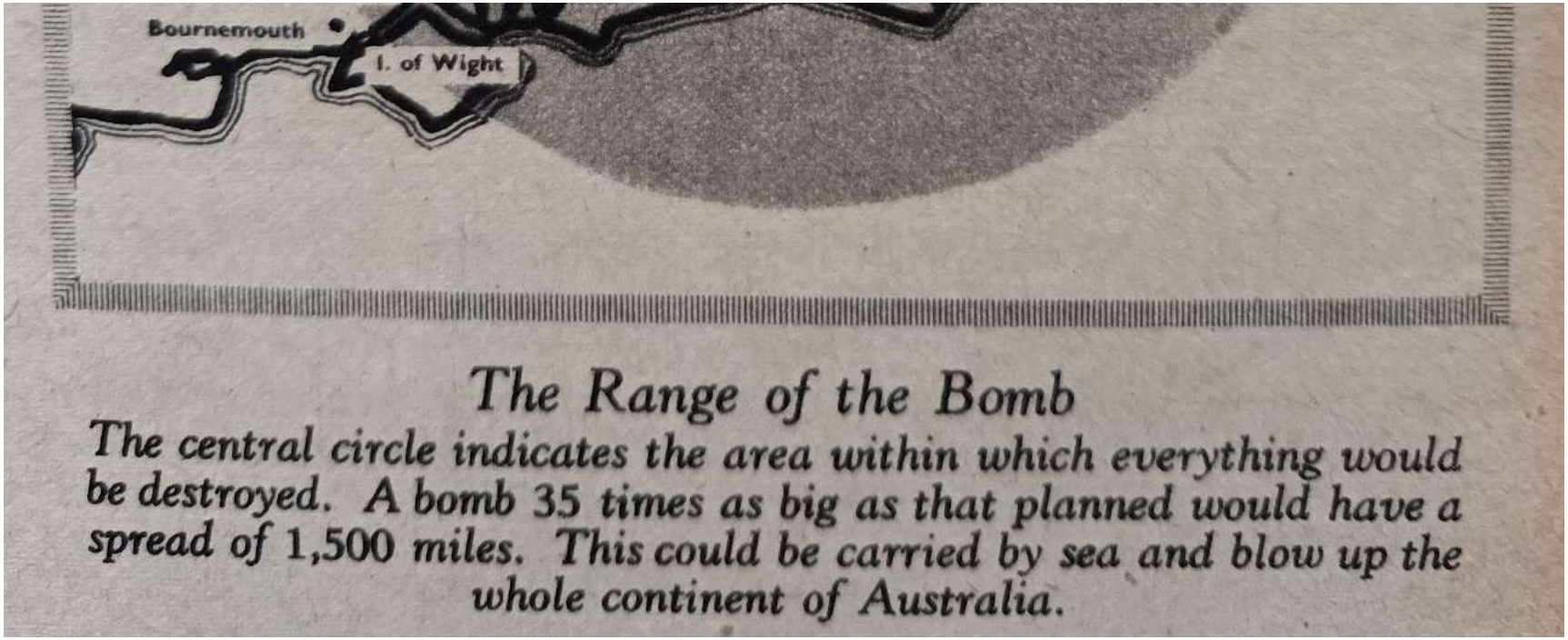


THIS IS WHAT WOULD HAPPEN IF A HYDROGEN BOMB WERE DROPPED ON THE BRITISH HOUSES OF PARLIAMENT

If a hydrogen bomb were dropped at Westminster, everything within 8 miles would be completely destroyed. No person or building would survive. Sixteen miles away temperatures would still be great enough to melt some stone—from 10 to 100 times as hot as boiling water. At Tilbury the Thames would still be boiling, and the sea would be unbearably hot even at Southend, where most of the houses would be destroyed and few people would survive.

Ships off Colchester in the Thames Estuary would be sunk by the storm caused by the vast pressure waves that the explosion would create. Tidal waves would batter Calais and the French channel ports. In Peterborough, Southampton and parts of the Isle of Wight many houses would collapse. Yet if the Nagasaki bomb had been dropped at the same point, little damage would have been done beyond Regent's Park, Hyde Park and Battersea Park.


Norwich
Leicester
Peterborough
Mundford
Coventry
Northampton
Stratford-
on-Avon
Bedford
Hitchin
Braintree
Colchester
Cheltenham
Aylesbury
Cirencester
Southend
Swindon
London
Reading
Ramsgate
Devizes
Maidstone
Guildford
Dover
Salisbury
Southampton
Lymington
Eastbourne



The Range of the Bomb

The central circle indicates the area within which everything would be destroyed. A bomb 35 times as big as that planned would have a spread of 1,500 miles. This could be carried by sea and blow up the whole continent of Australia.

Picture Post, 18 *February*, 1950

BRITISH SCIENTISTS ANSWER THE QUESTION ALL THE WORLD IS

PROFESSOR KATHLEEN LONSDALE
F.R.S., Executive Secretary, Atomic Scientists' Association.



I believe that the use of all weapons of mass destruction is utterly immoral. I think that scientists and technicians should refuse to work on them. But they are not the only people who are responsible. The citizens who pay for the work to be done, and the politicians who are allowed, through public inertia, to decide that it shall be done, are also responsible. A heavy responsibility rests, in particular, upon the Christian Churches, who have in general sat on the fence and who have failed to give any moral lead to the world, presumably for fear of weakening the hands of the politicians on their own side. Christians, of all people, ought to realise that to talk of hydrogen bombs as a possible instrument of God's justice is pure blasphemy. Neither ideals nor civilisation will be saved if they are used, for they will destroy both simultaneously.

I realise, of course, that the hope in the minds of most people (politicians who give orders, scientists who obey, and citizens who ultimately pay and therefore effectively approve) is that huge armaments, stockpiles of plutonium and hydrogen bombs, biological weapons, conscripted armies and the rest, will *prevent* war and prevent also the aggression which might lead to war. I believe this to be a most immoral and a frightfully dangerous gamble in the lives of millions of men and women. Immoral, because it is based on belief in the potency of fear as the driving force in the war, dangerous because it puts enormous power into the hands of a relatively few people, who may easily be corrupted by it, and a gamble, because it may well fail, especially if directed against a nation or politicians to whom human lives are relatively unimportant.

What, then, is the alternative? Politicians realise (as most people, I think, do not) that the alternative to 'arming to the limit' is complete disarmament. They regard this, however, as an even more desperate expedient. It is, of course, equally a gamble. It means that we would have to put our faith in attempts at genuine friendship and goodwill, instead of in fear and threats. I believe that we should do this, whatever the consequences, and that our foreign policy should be reshaped on the assumption that all peoples everywhere desire peace and that, if given a lead, they would be willing to try together to build up a world in which our children need not be afraid of growing up.

PROFESSOR R. E. PEIERLS
F.R.S., Professor of Mathematical Physics at Birmingham University, a Pioneer Atomic Scientist



I am very sorry to know that work on the hydrogen bomb is going ahead. I would be sorrier still to believe that there was any likelihood of it being used. The 'old-fashioned' atom bomb project opened up also important constructive uses, but this is most unlikely with the hydrogen bomb. The effort that will be put into the new project is therefore on a level with that going into the manufacture of ordinary bombs, war-planes or submarines, only the new weapon will be enormously more expensive and infinitely more terrifying. It is a sign of failure of our hopes for the future of international relations that it should be considered necessary to go ahead with a project like this. The justification for this is not necessarily any intention to use it, but as a move in an atomic armaments race, which was bound to start unless international agreement could be reached on these and other armaments. I do not believe, in spite of these discouraging developments, that war is certain or even likely. With new and terrifying weapons both winner and loser in any war will suffer severe destruction, and as a result nobody will resort to war lightheartedly. We must go on losing no opportunity to reach agreement or to improve international relations. This is not a question on which a scientist is qualified to speak, but one does worry what effect the new announcement about the hydrogen bomb will have on international relations.

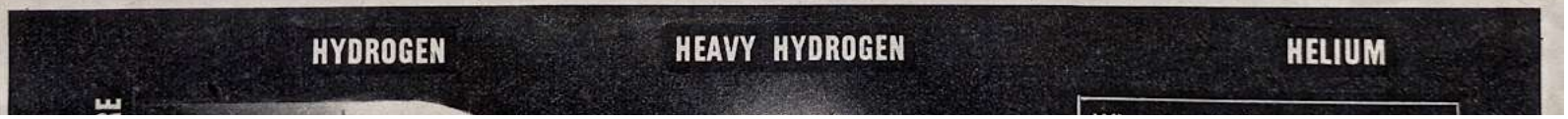
DR. BARNES
Bishop of Birmingham, Doctor of Science and Fellow of the Royal Society.

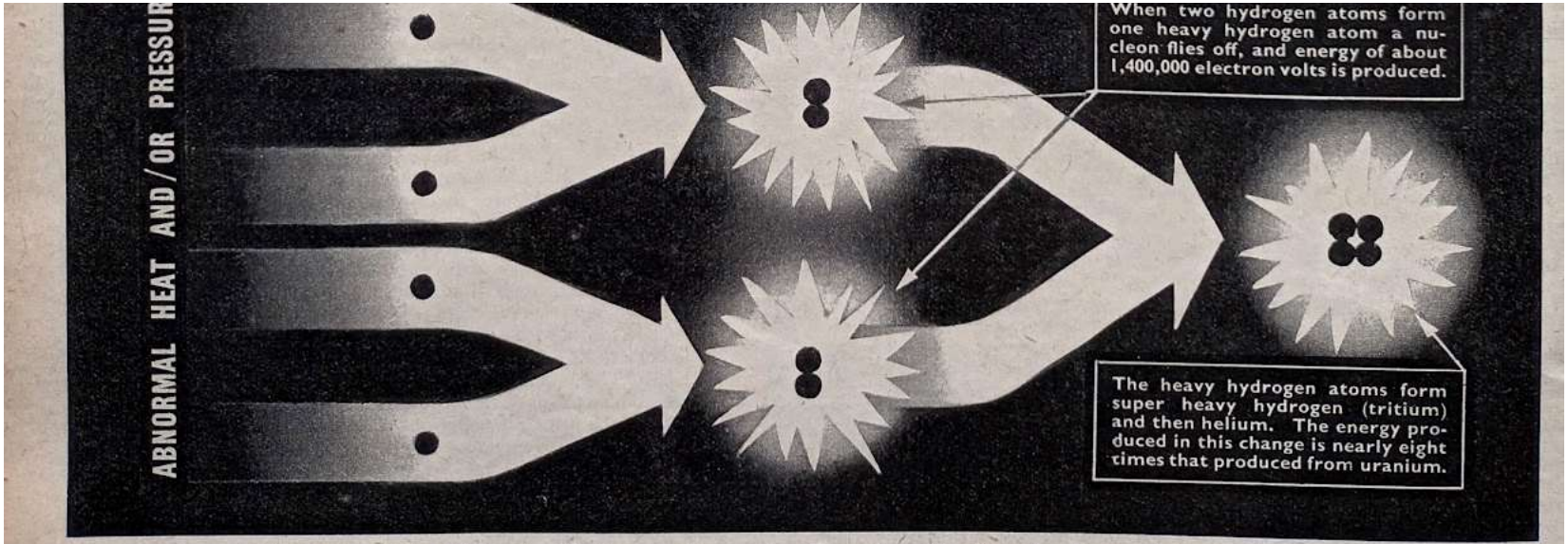


I do not think it right to kill people in order to get my own way or in order to resist someone whom I regard as evil. Neither do I think it right that any nation, my own included, should make elaborate preparations to kill, even for a good cause, large numbers of people belonging to other nations.

In Christ's teaching we find no approval of war. We are to do unto others as we would have them do unto us. Christian ecclesiastics are apt to avoid Christ's teaching because they are afraid to lose what they call freedom and to risk injury to themselves and to their loved ones. So when their nation, or one thought friendly, invents a new and devilish weapon, they do not repudiate its use.

The use of atom bombs against Japan without notice was, surely, a disgrace to the Governments using them. It seems certain that the hydrogen





The Basis of the H-bomb: Hydrogen Atoms Are Forced to Combine by Strong Electrical Charges

The first atom union causes great temperatures or pressures. Greater pressures and temperatures will make the heavy hydrogen atoms become super heavy ones (tritons) and eventually helium ones. It is this change which causes the explosion. The 1,400,000 electron volts produced by the lesser hydrogen to heavy hydrogen charge equal a temperature of over 11,000,000,000 degrees Centigrade.

Picture Post, 18 *February*, 1950

ASKING: WHAT SHOULD BE DONE ABOUT THE HYDROGEN BOMB?

bombs will be vastly more destructive than their predecessors; and there is no indication that the released energy can be controlled and put to good use. From the beginning the early discovery gave promise of being valuable for peaceful purposes, but this is entirely different.

By all means let our leading physicists, many of whom hate war with Christian intensity, develop the science of atomic physics in every way that promises to forward human civilisation. But let us as a nation firmly refuse to use their researches as more powerful methods of mere destruction.

PROFESSOR H. S. W. MASSEY
F.R.S., Goldsmith Professor of Mathematics, London University.



If the hydrogen bomb is technically feasible, and we must assume from recent reports that it is, there is no doubt that it could be a very much more powerful destructive agent than the 'conventional' atomic bomb. Indeed, since it would operate in a manner similar to those processes which provide the heat of the sun and stars, care might have to be taken to prevent the explosion spreading far beyond the range contemplated. With the conventional bomb there is no risk at all of this happening.

The use of weapons of this kind in a future war is an appalling prospect which could hardly fail to plunge the world back into a new dark age. It is not even absurd to contemplate the possibility of the whole world being converted into a new minor star in the course of a frenzied search by potential or actual combatants for newer and better bombs!

Further effort must be made to grapple once more with the political problems which stand in the way of an agreement to abolish weapons of mass destruction. Sufficient safeguards must be provided to minimise the risk run by the individual nations in permitting some degree of inspection or in giving up the use of certain weapons. Possession of the most up-to-date bomb is no protection for any country.

Some way must be found to end the atomic arms race, otherwise colossal disaster is certain. Obvious as this was a few years ago, it is surely even clearer now.

PROFESSOR MAURICE H. PRYCE
Wykenham Professor of Physics, Clarendon Laboratory, Oxford.



I am very sorry to hear that the United States have decided to go ahead with the manufacture of the hydrogen bomb; though I cannot say that I am surprised by their decision. In the present state of mistrust between America and Russia it could hardly be otherwise. But I think it is a healthier state of affairs to have the possibility of a hydrogen bomb brought out into the open. The desirability of international agreement over atomic weapons is brought more sharply into view. And it must be a realistic agreement to which both Russia and America can subscribe. The difficulty of agreement is not reduced, but its urgency is greatly increased.

Scientific circles have for some time suspected the possibility of a "super-bomb' using hydrogen in some form. Indeed such a device has been described in an Austrian book on atomic energy. The attempt to keep the broad principles a secret could not remain successful for long, and involves suppressing information of scientific value which has only a remote connection with the manufacture of hydrogen bombs. Such secrecy ends by being harmful, by preventing the free interchange of fundamental scientific information, and seldom achieves the purpose of stopping another country from developing a weapon. This was demonstrated by the recent Russian atomic bomb, although it must be granted that many of the purely scientific principles had been openly published.

I therefore welcome the fact that the hydrogen bomb has come out into the open, though I much regret that it is being manufactured. I hope that neither it nor the atomic bomb will be used on any future occasion.

DOCTOR E. H. S. BURHOP
of London University. Member of Association of Scientific Workers, Atomic Energy Committee



The uranium bomb is in the 'production stage' and it would not affect the building of more and more U-bombs if the scientists working on them refused to co-operate. The uranium bomb is now mainly in the hands of technicians.

The hydrogen bomb, on the other hand, is at a stage where if about one hundred leading scientists withheld their services, it would probably not be possible to make it.

I think that if only one of the two countries who are capable of making the bomb declared that they would not under any circumstances make any attempt to develop this weapon, then the other country would probably not continue development work; firstly because of the great expense involved, and, secondly, because the bomb would have little military significance, but could only be used for mass terror against civilian populations. This underlines the necessity to bring scientists of all countries together to discuss action to stop making such mass-terror weapons.

Immensely large size could only be accomplished by means of a bomb which contained a series of such layers or links. Helium gas only becomes liquid at very low temperatures, but recent research has shown that it can be made to liquefy at room temperatures, when pressures of the order of 100,000 lbs. are used. Scientists believe that pure heavy hydrogen can be made in a liquid form in a similar way, thus enabling pure heavy hydrogen to be used in the

hydrogen itself, can be used, this mass of dead, non-reacting material is eliminated. Then the 'mass defect' of the hydrogen is greater than that when the uranium is changed. But if Tritium is used, the mass defect is very much smaller.

A mass defect of 0.0292 in the atomic weights of the hydrogen which starts the reaction, and the helium which ends it is, in a sense, both the record of

form in a similar way, thus enabling pure heavy hydrogen to be used in the hydrogen bomb. Tritium (super heavy hydrogen) can also be made in atomic piles.

The size of such a bomb would be limited only by the difficulties of transport. It is probable that a three-stage bomb, containing the uranium or plutonium core and two layers of hydrogen, will prove to be the limit of size for air-transport. But the possibilities of water transport must not be forgotten. A hydrogen bomb could be built inside a tramp steamer, or other vessel, and war started by means of a Pearl Harbour type of attack. But such a vessel would need to be manned by suicide squads, since it is improbable that a vessel could lie long enough uninspected off a coast, or in some little-used port for the crew to make their escape. Nevertheless the possibility is there.

The power of the hydrogen bomb does not depend entirely on the fact that it can be made much larger than the uranium bomb, but also on much more fundamental physical factors. Thirring's calculations are based on the possible use of hydrogen compounds, and do not give a clear picture of the potential power of the bomb.

The energy produced by the hydrogen to helium change depends, like the uranium-splitting change, on the difference in weight of the first materials and the end product. This difference is called the 'mass defect.'

If heavy water is used in the hydrogen bomb (heavy water is manufactured expensively, but in quantity by submitting ordinary water to high voltage electrical charges, until all the hydrogen atoms become heavy hydrogen ones) the power is lessened by the large amount of oxygen present, one oxygen atom on the atomic scale being equivalent to sixteen ordinary hydrogens, or eight heavy hydrogens. The same applies if paraffin wax containing heavy hydrogen atoms is used. If, however, a purer form of heavy hydrogen, or even

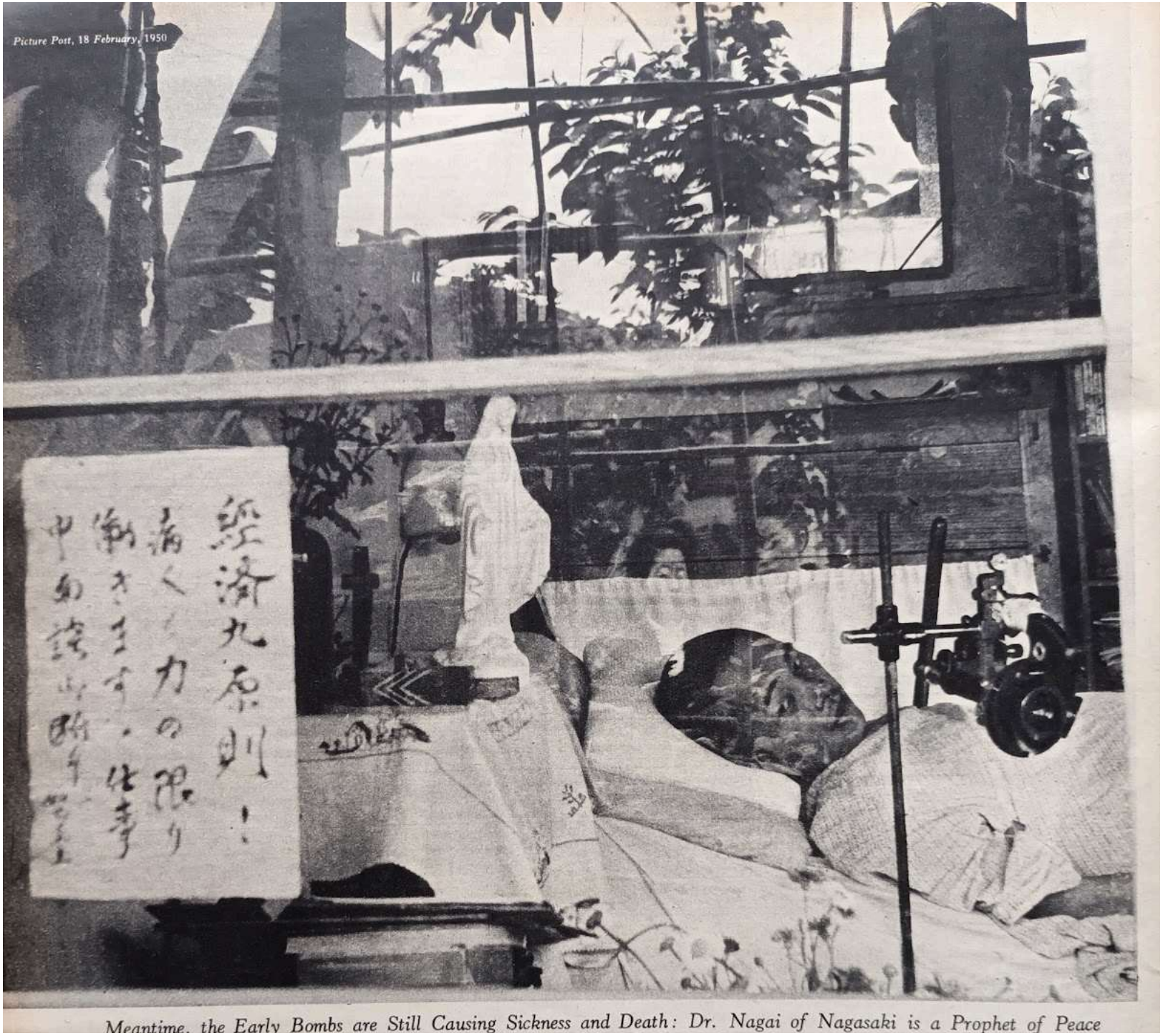
the energy produced and the recording of the flying-off of the neutron which is brought about by the reaction. This potential energy is approximately eight times that of the uranium change: 182,500 kilowatt hours against 22,500 kilowatt hours.

The hydrogen reaction is also much more efficient than the uranium reaction, once it can be set going. One of the greatest problems in atomic bomb manufacture has been to obtain efficiency of disintegration; will the reaction be complete? Will all the uranium (or its secondary product plutonium) disintegrate, or will only a small part of the material be affected? It is known that in the first atomic bombs only a small part of the 'fissionable material' did in fact disintegrate, and recent accounts of better and better bombs—"we like the results"—have largely been concerned with this type of efficiency. At least a 12 per cent. greater efficiency can be expected from the hydrogen reaction, and probably very much more.

Now the hydrogen bomb reaction is very different from the uranium reaction in another way: it is a building reaction, not a breakdown one. The uranium breaks down (splits) into smaller and smaller elements. The hydrogen is, however, the simplest of all elements in its ordinary form. Heavy hydrogen has twice the atomic weight of the ordinary hydrogen, and is almost indistinguishable in its chemical properties, but is the next biggest element. The hydrogen chain is a building-up one. The end product helium is a bigger atom than the hydrogen atoms that started off the changes.

Another important fact is that the hydrogen reaction does not lead to the production of radio-active by-products, as the uranium one does. It will only do so if it starts off reactions in other much larger atoms. It has no other use than that of a power producer. But the power produced cannot conceivably

Continued overleaf



Meantime, the Early Bombs are Still Causing Sickness and Death: Dr. Nagai of Nagasaki is a Prophet of Peace

For four years Dr. Nagai has been dying of radiation sickness. Warfare with dust bombs would mean millions of such victims. Doctors know no cure. The end may be death, cataract or blindness—often after long years of illness. Dr. Nagai spends his last years writing books against atomic warfare and thousands read and wonder what will be the eventual fate of man.

be harnessed for peaceful purposes, as it is too great. It is, therefore, only a weapon of war. Thus it is fair to say that there is an 8 times greater reaction if you can use a hydrogen bomb, than if you can use a uranium one of the old type, and at least a 12 times greater efficiency. That is to say, nearly a hundred times better bomb all told ($8 \times 12 = 96$). But this is not the whole difference, for if you can use hydrogen, you can use more of it. You don't have to, but you can do. If you can use only eleven times more hydrogen, you have a bomb giving a thousand times as much energy, and therefore a thousand times more destructive.

Such a bomb would be capable of melting stone at distances up to 16 miles away from where it was dropped, and knocking down some buildings as far as 80 miles away from the centre of the explosion.

Not only is hydrogen potentially more powerful than uranium and such theoretical alternatives as lithium hydride, but there is virtually no limit on the amount of heavy hydrogen which can be produced, and *no theoretical limit to the size of the bomb which can be constructed.*

Will such a bomb 'set the atmosphere on fire'? We don't know. It should not do so, because the pressure and heat will disperse rapidly, and these are necessary in order to start the chain-reaction in the atmosphere just as in the bomb itself. But too big a bomb might do just this. In theory it *would* be possible to construct a hydrogen bomb along the lines described, which would create enough temperature and pressure for it not to be dissipated rapidly enough in the atmosphere for the avoidance of this terrifying event. But such a bomb would have to be of vast size, for the reaction to maintain itself in the sparsely scattered hydrogen and heavy hydrogen atoms of the atmosphere unless large numbers of other elements also become involved. It could certainly not be airborne under present conditions of air transport. Yet there is uncertainty about this danger even with a hydrogen bomb which could be carried in aircraft, and all we can say at the moment is that "It may, *but it almost certainly won't.*"

Not only is it certain that advanced experiments on the hydrogen bomb are being made in America, but constructional plans have reached the blueprint stage. It is known that experiments are under way in Russia.

That is the story. There are no great difficulties, and the hydrogen bomb can soon be a reality, if either America or Russia decide to make it.

IN this welter of bomb speculation one other prospect is neglected: the possibility of war by means of radio-active dust. Wherever atomic piles are in use, vast quantities of radio-active isotopes are produced. Over two hundred isotopes are known, and these include over a hundred radio-active ones (not all isotopes are radio-active). They are being used for a variety of purposes. They are valuable aids to medical research and veterinary research and therapy. Yet they can also be used for harm. In some cases absorption of so small a quantity as a $\frac{1}{4}$ millionth part of a gram would be sufficient to cause illness and eventual death. If these substances could be scattered in large quan-



The Crowds Outside Bowed Him Because of His Courage in the Throes of Lingering, Painful Death

The Crowds Outside Revere Him Because of His Courage in the Throes of Lingering Painful Death

Some have come from hundreds of miles. Some spent their savings to pay the fare. They come to pray for Dr. Nagai. They come to pay their respects to a brave man of triumphant spirit. Perhaps they are inspired by sentimentality. Perhaps by morbidity. Perhaps by curiosity. Many know that in the last months cases of cataract, caused by the atom bombs of 1945, are suddenly starting to occur.

tities in the atmosphere over a large city, nearly the whole population would be killed. There would be no cure. Some of these isotopes (chemicals which are similar in behaviour to their ancestors but which have greater atomic weights) are by-products of the manufacture of plutonium from uranium.

Many of these dusts have only a short radio-active life. This means that cities attacked with them could be occupied by hostile troops in perfect safety only a short time after the initial attack. Buildings and factories would remain undamaged.

Normally these substances have to be kept in lead containers, and it would obviously be impossible to pack the dust bomb full of lead containers, and it would be difficult to obtain effective scattering if this were done. It would therefore be necessary to pack them in bulk within a large container, lined with lead or some similar substance in order to reduce the dissipation and escape of radiation. It is possible that the scattering explosives would also have to be protected against radiation in order to prevent their being exposed to possible reaction. The same factor would operate in the case of the larger charge which would be necessary in order to split the bomb case.

Yet these dust bombs can be envisaged as large containers containing bulk radio-active dust with protected explosive charges scattered amongst them, and a larger explosive charge at one end in order to split open the shell and start the scattering.

These dust bombs could be delivered by specially-protected planes which would carry them in bomb holds which are specially shielded off from the pilots' quarters in order to protect them from the leakage of radiation. A largish explosive charge would detonate the bomb soon after its release from the plane, while it was still in the air, and the smaller charges would explode on contact with the ground or just before this, in order to help scatter the dust. Delivery by rocket or V2, as suggested by Thirring, would be possible, but would not make scattering an easy task.

Unfortunately, this method of warfare *cannot* be dismissed as unlikely, or impracticable, and although the practical aspects do present many problems, these are not nearly so great as those which confronted the makers of the first atomic bomb. The major difficulties are the protection of the workers assembling the dust-bombs, the prevention of deterioration of the radio-active dust while in its bulk state awaiting delivery, and the working-out of methods of scattering by means of explosive charges which themselves may need protection from their evil fellow-travellers.

Scientists may continue to shrug their shoulders and dismiss the dust bomb as full of snags, or not very likely to be used when atomic bombs are available, yet the danger must be faced that one day, if not already, one of the countries possessing atomic piles may decide to explore this method of warfare, and perfect it. If so, the result may be equally macabre, if not so immediately spectacular, as warfare conducted with super hydrogen atom bombs.

DEREK WRAGGE MORLEY

LETTERS

Soviet Civil Defense

Deborah Shapley's article "Soviet civil defense: Insiders argue whether strategic balance is shaken" (News and Comment, 10 Dec. 1976, p. 1141) provides information that should prove useful to scientists and others concerned with the strategic significance of realistic civil defense preparations.

Her description of the Soviet civil defense installations is quite comprehensive. The only relevant point that we found lacking is the instruction of the people in civil defense measures. Every schoolchild has 3 years' instruction in the effects of nuclear weapons and in the civil defense measures to minimize them. A total of about 135 hours is devoted to the subject. There is similar instruction in factories, and hundreds of thousands of handbooks on civil defense are published and distributed.

Another factor, mentioned by Shapley but in our view underemphasized, is the plan for evacuation. If this is carried out and followed by a set of demands resulting in a confrontation, the bargaining position of our country would be miserable. The Soviet Union could threaten to destroy half of the U.S. population; we could destroy only a small fraction of theirs. The Soviet losses would be well below those suffered in World War II. Such a threat, "nuclear blackmail," is the danger many of us fear most. The first of the above numbers is confirmed in the published part of the *Ponast II* study (*1*). Soviet losses are estimated to be between 2¾ and 4½ percent in their civil defense handbooks, but some of the U.S. estimates, though still quite low, are considerably higher. The estimate of one of us (E.P.W.) agrees with the Soviet. Soviet military and civilian leaders have always rejected the concepts of "mutual assured destruction," a strategic theory based on the United States and the Soviet Union leaving their populations vulnerable. One of the Soviet responses to U.S. threats, first of "massive retaliation" and then of "assured destruction," is their comprehensive preparations to survive even an all-out war.

Let us observe, finally, that we cannot quite understand Panofsky's and Garwin's fear, quoted in the article, that a U.S. civil defense effort would alarm the Soviet leaders and would be destabilizing. If the Soviet civil defense does not alarm them and is not destabilizing, why would our emulation of some of these measures be alarming and destabilizing? Did Khrushchev not say, "Don't be afraid. If I offer my embrace, you will not refuse it"?

CRESSON H. KEARNY
Oak Ridge National Laboratory, Oak Ridge, Tennessee 37830

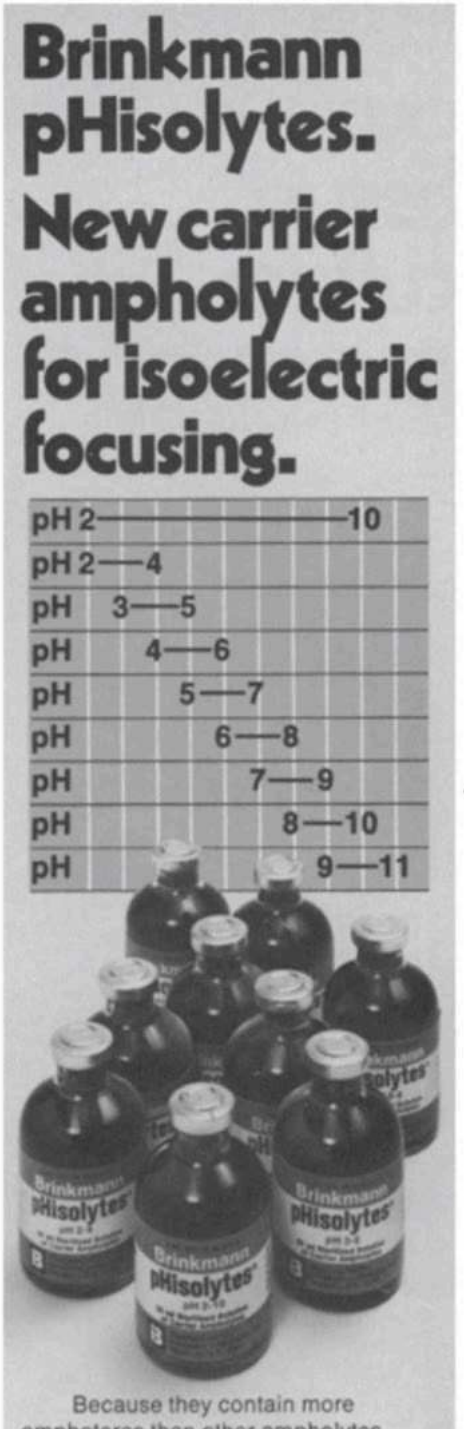
EUGENE P. WIGNER
Department of Physics, Princeton University, Princeton, New Jersey 08540

References

1. *Ponast II* (briefing prepared by the Defense Civil Preparedness Agency, Washington, D.C., 1975; based on a classified interagency study sponsored by the Joint Chiefs of Staff, Studies Analysis and Gaming Agency, Washington, D.C., 1973).
2. V. I. Lenin, *Collected Works*, vol. 38, p. 359, as quoted in the comprehensive Soviet handbook *Civil Defense* (Publishing House for Higher Education, Moscow, ed. 2, 1974).

TVA's Record

I should like to compliment Deborah Shapley on her article (News and Comment, 19 Nov. 1976, p. 814) concerning the Tennessee Valley Authority (TVA).



viet estimate.

To discover the "motives behind Soviet population defense" one should read what Soviet leaders have clearly and repeatedly told their own people. One key to the understanding of these motives is Lenin's often quoted dictum: "The primary productive factor of all of humanity is the laboring man, the worker. If he survives, we can save everything and restore everything—but we shall perish if we are not able to save him" (*2*). Of course, if they can push us by threats into repeated concessions, just as Hitler pushed Czechoslovakia, there would be no need to rebuild their factories. The Soviets, like the majority of mankind, always have believed that a primary responsibility of any nation's government is making preparations to save the lives of its citizens if war oc-

The case against TVA is convincingly delineated from the early days when it "arrived" to tame the rampaging rivers, advise the farmers on better agricultural methods, and, yes, as a by-project, to produce the electrical energy hitherto absent in the Tennessee Valley.

Over the course of its development, TVA has performed a comprehensive service to the citizens of this poverty-shackled valley that private utility companies were reluctant to offer. Utility planners worth their keep could not survive for long by suggesting that large capital expenditures be directed toward a rural, backward region where the median income was less than half that of the rest of the country. However, Congress accepted the socioeconomic challenge and created TVA. Yet because it is the largest utility in the nation, TVA de-

amphoteres than other ampholytes, Brinkmann pHisolytes provide a wider general pH range, from pH 2 to 10. pHisolytes are also available in eight individual pH ranges, each with a span of 2 pH units, from pH 2-4 to pH 9-11.

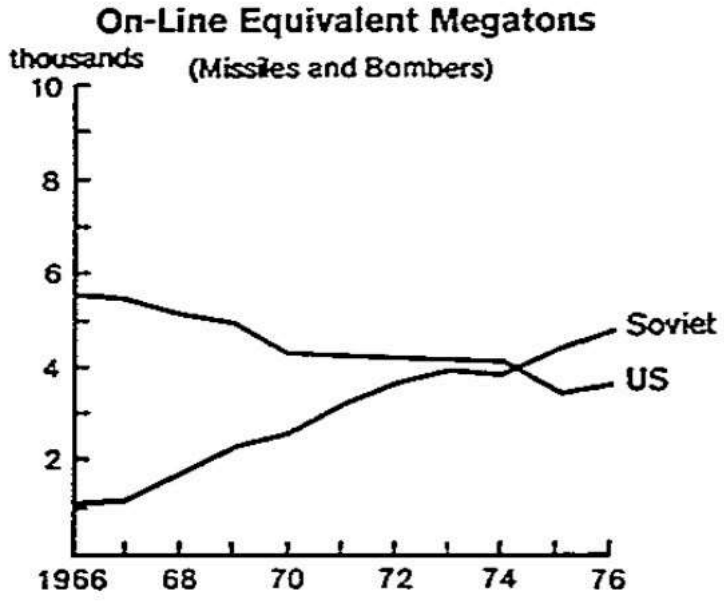
pHisolytes are composed of amphoteres synthesized from aliphatic polyamines with primary, secondary and tertiary amines and guanidine groups. They range in molecular weight from 400 to 700 and are easily separated from proteins by gel filtration techniques. pHisolytes come in sterile vials of 25 ml; each batch is tested for buffering capacity and adsorption .

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• Excludes ICBM silo launchers under construction or conversion and SLBM launchers on SSBNs undergoing sea trials, conversion, or shipyard overhaul. Missile payloads composed of MRVs (which are not independently targetable) are counted as one RV.

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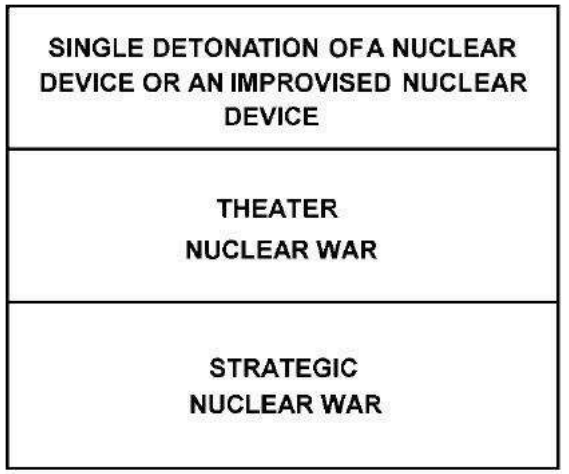
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~~S 869121-76/1~~ ~~Top Secret~~

MEMORANDUM FOR: Recipients of National Intelligence Estimate 11-3/8-76, "Soviet Forces for Intercontinental Conflict Through the Mid-1980s"

FROM George Bush

Fred Kaplan, plus most of the infiltrated mass media, continued ranting about premature 1957 warnings of a missile gap, long after the missile gap became real...



U.S. ARMY FIELD MANUAL FM 4 - 02 . 283, TREATMENT OF NUCLEAR AND RADIOLOGICAL CASUALTIES, 2001 FIGURE 1-1.

"Controlling escalation is really an exercise in deterrence, which means providing effective disincentives to unwanted enemy actions. Contrary to widely endorsed opinion, the use or threat of nuclear weapons in tactical operations seems at least as likely to check as to promote the expansion of hostilities."

- Bernard Brodie, Escalation and the nuclear option, RAND Corp memo RM-5444-PR, June 1965, p. vi.

ABOVE: Russian 1985 1st Cold War SLBM first strike plan. The initial use of Russian SLBM launched nuclear missiles from off-coast against command and control centres (i.e. nuclear explosions to destroy warning satellite communications centres by radiation on satellites as well as EMP against ground targets, rather than missiles launched from Russia against cities, as assumed by 100% of the Cold War left-wing propaganda) is allegedly a Russian "fog of war" strategy. Such a "demonstration strike" is aimed essentially at causing confusion about what is going on, who is responsible - it is not quick or easy to finger-print high altitude bursts fired by SLBM's from submerged submarines to a particular country because you don't get fallout samples to identify isotopic plutonium composition. Russia could immediately deny the attack (implying, probably to the applause of the left-wingers that this was some kind of American training exercise or computer based nuclear weapons "accident", similar to those depicted in numerous anti-nuclear Cold War propaganda films). Thinly-veiled ultimatums and blackmail follow. America would not lose its population or even key cities in such a first strike (contrary to left-wing propaganda fiction), as with Pearl Harbor in 1941; it would lose its complacency and its sense of security through isolationism, and would either be forced into a humiliating defeat or a major war.

Before 1941, many warned of the risks but were dismissed on the basis that Japan was a smaller country with a smaller economy than the USA and war was therefore absurd (similar to the way Churchill's warnings about European dictators were dismissed by "arms-race opposing pacifists" not only in the 1930s, but even before WWI; for example Professor Cyril Joad documents in the 1939 book "Why War?" his first hand witnessing of Winston Churchill's pre-WWI warning and call for an arms-race to deter that war by the sneering Norman Angell). It is vital to note that there is an immense pressure against warnings of Russian nuclear superiority even today, most of it contradictory. E.g. the left wing (Russian biased) "experts" whose voices are the only ones reported in the Western media (traditionally led by "Scientific American" and "Bulletin of the Atomic Scientists"), simultaneously claim Russia imposes such a complex SLBM and ICBM threat that we must disarm now, while also claiming that their tactical nuclear weapons probably won't work so aren't a threat! In similar vein, Teller-critic Hans Bethe also used to falsely "dismiss" Russian nuclear superiority by claiming (with any more evidence than Brezhnev's word, it appeared) that Russian delivery systems are "less accurate" than Western missiles (as if accuracy has anything to do



Director of Central Intelligence

~~Top Secret~~

[redacted]

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Soviet Capabilities for Strategic Nuclear Conflict Through the Mid-1990s

~~Top Secret~~

NIE 11-3/8-84/85

SOVIET CAPABILITIES FOR STRATEGIC NUCLEAR CONFLICT THROUGH THE MID-1990s

KEY JUDGMENTS

Information available as of 25 April 1985 was used in the preparation of this Estimate, which was approved by the National Foreign Intelligence Board on that date.

[redacted] While there are differing views, we assess that the Soviets have deployed, and will continue to deploy, some missiles with more warheads than the maximum number flight-tested—the total of reentry vehicles (RVs) actually released plus those simulated. [redacted] The number of warheads could be significantly underestimated under an arms control agreement that counted deployed warheads by using the maximum number flight-tested on each missile type. This problem is of current concern [redacted] it will be a problem for future MIRVed ICBMs and SLBMs. [redacted]

Russia's nuclear mindset as analysed in top secret 1985 Reagan era assessment of the strategic nuclear war risk.

Soviet leaders view arms control policy as an important factor in advancing their strategy of achieving strategic advantage. They have been willing to negotiate restraints on force improvements and deployments when it serves their interests. Moscow has long believed that arms control must first and foremost protect the capabilities of Soviet military forces relative to their opponents. The Soviets seek to limit US

Planning for Nuclear War

Soviet military planning is guided by fundamental Soviet wartime objectives: to decisively defeat enemy conventional and nuclear forces, occupy enemy territory in the theater, and defend the homeland against enemy attack. To meet these objectives, the Soviets train their forces for a global nuclear conflict. This training has diversified in scope and become increasingly complex in the operational factors with which it deals.

The Soviets apparently believe that a major nuclear conflict, if it occurred, would be likely to arise out of a NATO–Warsaw Pact conventional conflict preceded by a political crisis period that could last several weeks or longer. They perceive a conventional phase as lasting from a few days to as long as several weeks. The Soviets see little likelihood that the United States would initiate a surprise nuclear attack from a normal peacetime posture; we judge it is unlikely that the Soviets would mount such an attack themselves. Key objectives of the Soviets in

The Soviets, following t
reconstitute some surviving
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Capabilities of Strategic

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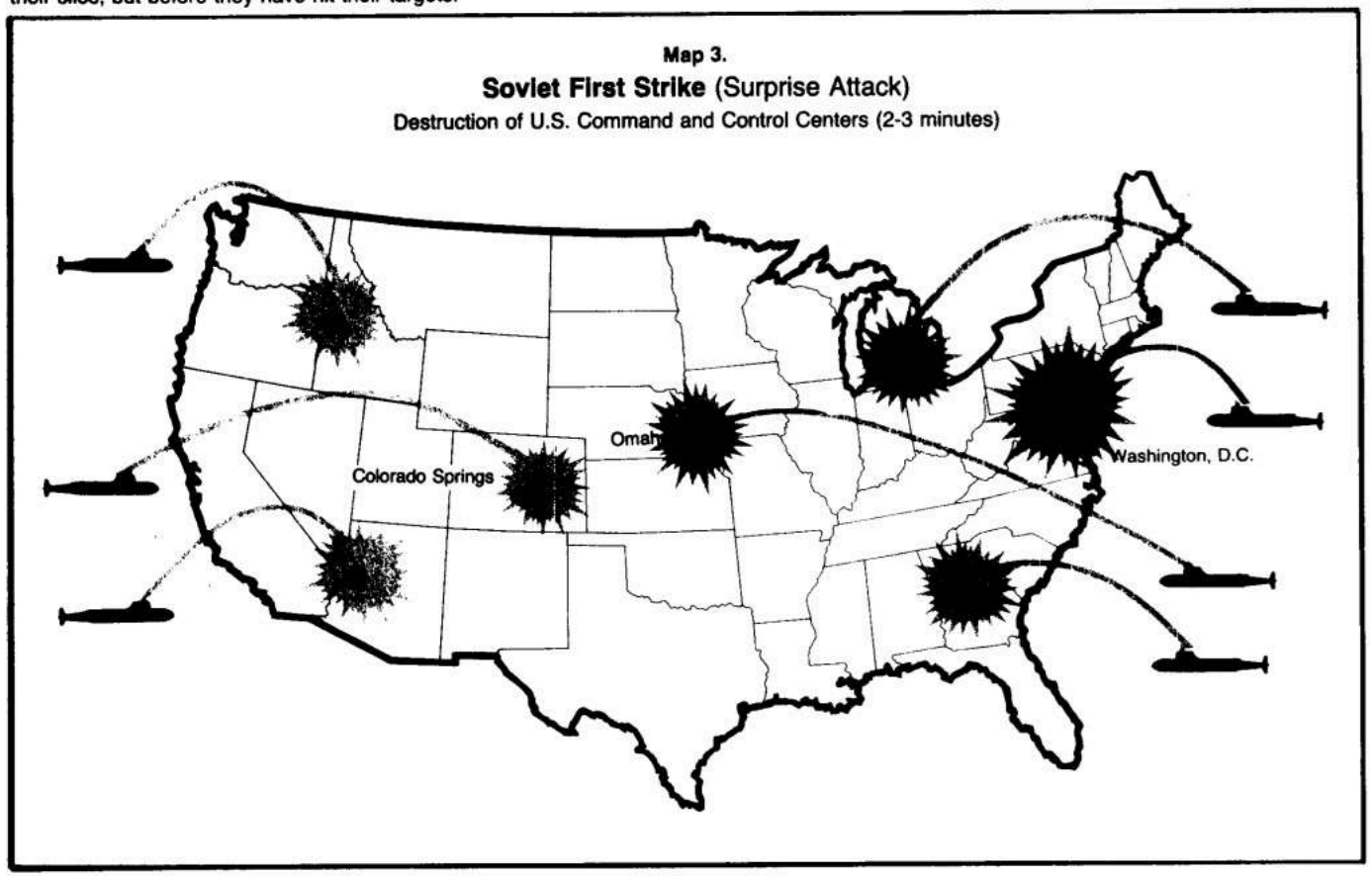
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damage to the USSR with
improvements taking place
provide protection for their
few hours' warning, a large
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possibly

with high altitude EMP strikes, where the effects cover thousands of miles radii). Such claims would then by repeatedly endlessly in the Western media by Russian biased "journalists" or agents of influence, and any attempt to point out the propaganda would turn into a "Reds under beds" argument, designed to imply that the truth is dangerous to "peaceful coexistence"!

Maps 3, 4, and 5 show the sequence of Soviet actions in the first 20 minutes of a "pre-emptive strike," after Soviet ICBMs have been fired from their silos, but before they have hit their targets.



SOURCE: "GLOBAL SHOWDOWN: THE RUSSIAN IMPERIAL WAR PLAN FOR 1988", https://www.cia.gov/readingroom/docs/CIA-RDP90-00845R000100310004-9.pdf

The Top Secret American intelligency report NIE 11-3/8-74 "Soviet Forces for Intercontinental Conflict" warned on page 6: "the USSR has largely eliminated previous US quantitative advantages in strategic offensive forces." page 9 of the report estimated that the Russian's ICBM and SLBM launchers exceed the USAs 1,700 during 1970, while Russia's on-line missile throw weight had exceeded the USA's one thousand tons back in 1967! Because the USA had more long-range bombers which can carry high-yield bombs than Russia (bombers are more vulnerable to air defences so were not Russia's priority), it took a little longer for Russia to exceed the USA in equivalent megatons, but the 1976 Top Secret American report NIE 11-3/8-76 at page 17 shows that in 1974 Russia exceeded the 4,000 equivalent-megatons payload of USA missiles and aircraft (with less vulnerability for Russia, since most of Russia's nuclear weapons were on missiles not in SAM-vulnerable aircraft), amd by 1976 Russia could deliver 7,000 tons of payload by missiles compared to just 4,000 tons on the USA side. These reports were kept secret for decades to protect the intelligence sources, but they were based on hard evidence. For example, in August 1974 the Hughes Aircraft Company used a specially designed ship (Glomar Explorer, 618 feet long, developed under a

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July 1987

The Soviet Defense In
Coping With the Mili
Technological Challe

Warning Notice — **Intelligence Sources or Methods Involved (WNINTEL)**

National Security Information — **Unauthorized Disclosure Subject to Criminal Sanctions**

The USSR probably will produce and deploy larger numbers of less capable weapons than the United States when doing so compensates for technological shortcomings or is a more cost effective way to meet military requirements. Moreover, the Soviets have often succeeded in translating technological achievements into weapon systems more rapidly than the West does. Thus, the technological levels of deployed Soviet and Western systems are more comparable than are the general levels of technology.

Russian 1st Cold War militarism compared to USA in Secret classified report

SOURCE: https://www.cia.gov/readingroom/docs/DOC_0000499526.pdf

Table 2
US and Estimated Soviet P
of Major Weapon Systems,

System
ICBMs and SLBMs
Intermediate- and medium-range ballistic missiles
Surface-to-air missiles
Long- and intermediate-range bon
Fighters
Helicopters
Submarines
Major surface combatants
Tanks
Artillery

secret CIA contract) to recover nuclear weapons and their secret manuals from a Russian submarine which sank in 16,000 feet of water, while in 1976 America was able to take apart the electronics systems in a state-of-the-art Russian MIG-25 fighter which was flown to Japan by defector Viktor Belenko, discovering that it used exclusively EMP-hard miniature vacuum tubes with no EMP-vulnerable solid state components.

Update: **Lawrence Livermore National Laboratory's $3.5 billion National Ignition Facility, NIF, using ultraviolet wavelength laser beam pulses of 2MJ on to a 2mm diameter spherical beryllium shell of frozen D+T inside a 1 cm-long hollow gold cylinder "hohlraum" (which is heated to a temperature where it then re-radiates energy at much higher frequency, x-rays, on to the surface of the beryllium ablator of the central fusion capsule, which ablates causing it to recoil inward (as for the 1962 Ripple II**

Approved For Release 2008/05/14 : CIA-RDP83M00914R002100120069-5

PROJECT TRUTH

Soviet Propaganda Alert

No. 1 **October 15, 1981**

ERW = neutron bomb (enhanced radiation warhead W79)

Anti-ERW propaganda dealing with the European context has not been decreased, but perhaps an attempt is being made to broaden the appeal of the Soviet campaign and make everyone feel more threatened by ERW and thus inclined to protest against it.

There has also been a shift of emphasis away from the theme of "the neutron weapon as an offensive weapon for clearing the way for invading troops." Stress is increasingly being placed on the argument that radiation contamination hazard from the weapon is much longer lasting and more intense than U.S. officials contend. If the Soviets want to play up the latter theme (as they evidently do), they cannot simultaneously charge that the weapon could be used to quickly clear the way for troops to move into or through an area.

SOURCE: https://www.cia.gov/readingroom/docs/CIA-RDP83M00914R002100120069-5.pdf

nuclear weapon's secondary stage, the capsule is compressed by a factor of 35, mimicking the isentropic compression mechanism of a miniature Ripple II clean nuclear weapon secondary stage), has now repeatedly achieved nuclear fusion explosions of over 3MJ, equivalent to nearly 1 kg of TNT explosive. According to a Time article (linked her) about fusion system designer Annie Kritcher, the recent breakthrough was in part due to using a ramping input energy waveform: "success that came thanks to tweaks including shifting more of the input energy to the later part of the laser shot", a feature that minimises the rise in entropy due to shock shock wave generation (which heats the capsule, causing it to expand and resist compression) and increases *isentropic* compression which was the **principle used by LLNL's J. H. Nuckolls to achieve the 99.9% clean Ripple II 9.96 megaton nuclear test**

success in Dominic-Housatonic on 30 October 1962. Nuckolls in 1972 published the equation for the idealized input power waveform required for isentropic, optimized compression of fusion fuel (*Nature,* v239, p139): $P \sim (1 - t)^{-1.875}$, where *t* is time in units of the transit time (the time taken for the shock to travel to the centre of the fusion capsule), and -1.875 a constant based on the specific heat of the ionized fuel (Nuckolls has provided the basic declassified principles, see extract linked here).

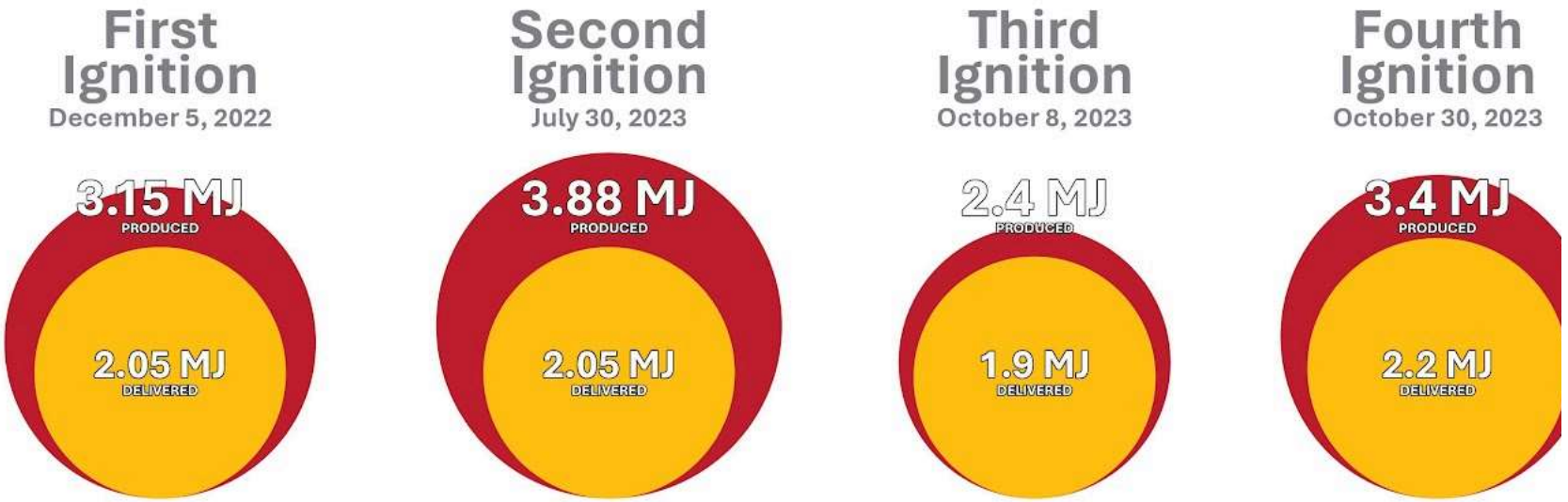
In a fission primary, speed of compression is of the essence in order to beat pre-initiation (where a stray spontaneous fission neutron from Pu-240 or Pu-242 impurities sets off the chain reaction before maximum compression is obtained, reducing the yield). But this danger is not possible when compressing a 100% fusion capsule, where speed is not the key, and fusion is automatically initiated when the compression squeezes the D+T to an adequate density. Provided that the compression mechanism is efficient for fusion, time is not of the essence. The fusion burn efficiency is a function of the compression attained, rather than the speed of implosion. *To be clear, the energy reliably released by the 2mm diameter capsule of fusion fuel was roughly a 1 kg TNT explosion.* 80% of this is in the form of 14.1 MeV neutrons (ideal for fissioning lithium-7 in LiD to yield more tritium), and 20% is the kinetic energy of fused nuclei (which is quickly converted into x-rays radiation energy by collisions). If this neutron and x-ray energy can be coupled by a scattering container into a small second stage of Li6D, it will be possible to set off a multiplicative chain reaction of fusion capsule stages, rapidly increasing the total fusion energy release. Nuckolls' 9.96 megaton Housatonic (10 kt Kinglet primary and 9.95 Mt Ripple II 100% clean isentropically compressed secondary) of 1962 *proved that it is possible to use multiplicative staging whereby lower yield primary nuclear explosions trigger off a fusion stage 1,000 times more powerful than its initiator.* OK, the first laser fusion ignitions last year only multiplied the supplied input energy by a factor that's closer to 2 than to the impressive 1,000 of the 1962 Ripple II nuclear warhead, but the problems and solutions are known and the whole basis of NIF for practical fusion power is improve this technology. (The first computers were far more than 1,000 times as bulky and less efficient than those available after a few years of very hard-graft research and development.) Even if initial-stage multiplications are far lower than 1,000, *you can simply add more small stages to get around this (they are tiny and won't take up a huge volume or mass in the warhead).* The later stages will definitely have less asymmetry problems (as in Ripple II), and we know from the Ripple II test back in 1962 that *you can definitely multiply by a factor of 1,000 to get from 10 kilotons to 10 megatons in a single multiplicative stage!* Another key factor, as shown on our **graph linked here, is that you can use cheap natural LiD as fuel once you have a successful D+T reaction, because naturally abundant, cheap Li-7 more readily fissions to yield tritium with the 14.1 MeV neutrons from D+T fusion, than expensively enriched Li-6**, which is needed to make tritium in nuclear reactors where the fission neutron energy of around 1 MeV is too low to to fission Li-7.

It should also be noted that despite an openly published paper about Nuckolls' Ripple II success being stymied in 2021 by Jon Grams, the subject is still being covered up/ignored by the anti-nuclear biased Western media! Grams article fails to contain the design details such as the isentropic power delivery curve etc from Nuckolls' declassified articles that we include in the latest blog post here. One problem regarding "data" causing continuing confusion about the Dominic-Housatonic 30 October 1962 Ripple II test at Christmas Island, is made clear in the DASA-1211 report's declassified summary of the sizes, weights and yields of those tests: Housatonic was Nuckolls' fourth and final isentropic test, with the nuclear system inserted into a heavy steel Mk36 drop case, making the overall size 57.2 inches in diameter, 147.9 long and 7,139.55 lb mass, i.e. 1.4 kt/lb or 3.0 kt/kg yield-to-mass ratio for 9.96 Mt yield, which is not impressive for that yield range until you consider (a) that it was 99.9% fusion and (b) the isentropic design required a heavy holhraum around the large Ripple II fusion secondary stage to confine x-rays for relatively long time during which a slowly rising pulse of x-rays were delivered from the

primary to secondary via a very large areas of foam elsewhere in the weapon, to produce isentropic compression. Additionally, the test was made in a hurry before an atmospheric teat ban treaty, and this rushed use of a standard air drop steel casing made the tested weapon much heavier than a properly weaponized Ripple II. The key point is that a 10 kt fission device set off a ~10 Mt fusion explosion, a very clean deterrent. **Applying this Ripple II 1,000-factor multiplicative staging figure directly to this technology for clean nuclear warheads, a 0.5 kg TNT D+T fusion capsule would set off a 0.5 ton TNT 2nd stage of LiD, which would then set off a 0.5 kt 3rd stage "neutron bomb", which could then be used to set off a 500 kt 4th stage or "strategic nuclear weapon".** It is therefore now possible not just in principle but in practice, using suitable already-proved technical staging systems used in 1960s nuclear weapon tests successfully, to design 100% clean fusion nuclear warheads! Yes, the details have been worked out, yes the technology has been tested in piecemeal fashion. All that is now needed is a new, but quicker and cheaper, Star Wars program or Manhattan Project style effort to pull the components together. This will constitute a major leap forward in the credibility of the deterrence of aggressors.

https://www.llnl.gov/article/50616/llnls-national-ignition-facility-delivers-record-laser-energy

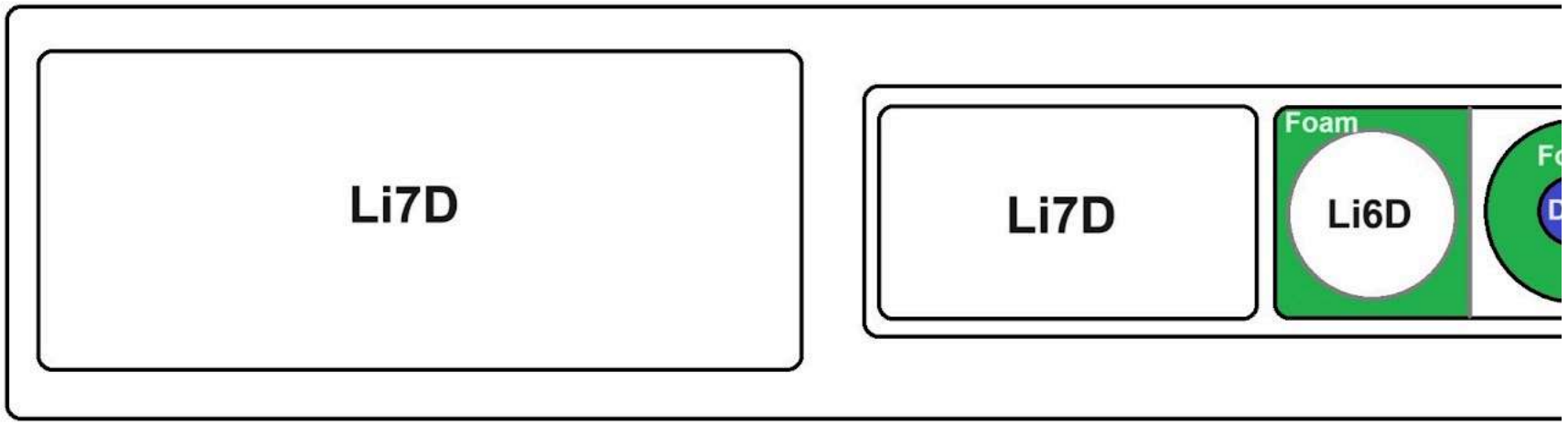
Charting the First Year of Ignition



On Oct. 30, Lawrence Livermore National Laboratory (LLNL)'s National Ignition Facility (NIF) set a new record for laser energy, firing 2.2 megajoules (MJ) of energy for the first time on an ignition target. This experiment resulted in 3.4 MJ of fusion energy yield, achieving ignition and delivering the second-highest neutron yield ever achieved on NIF.

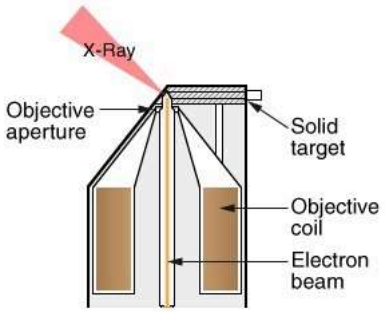
"Increasing laser energy can give us more margin against issues like imperfections in the fuel capsule or asymmetry in the fuel hot spot. Higher laser energy can help achieve a more stable implosion, resulting in higher yields."

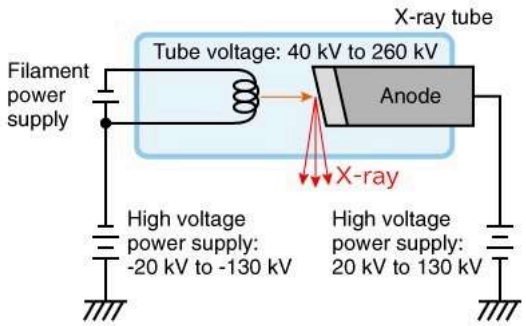




Casings thicknesses needed to contain each "subsystem" scale as the cube-root of the yield of the subsystem conce
Since 14.1 MeV neutrons are main source (80%) of the energy from each stage, casings absorb and convert some of t
the compression of Li6D and Li7D stages. The casings x-rays as a result of neutron heating, rather than solely acting

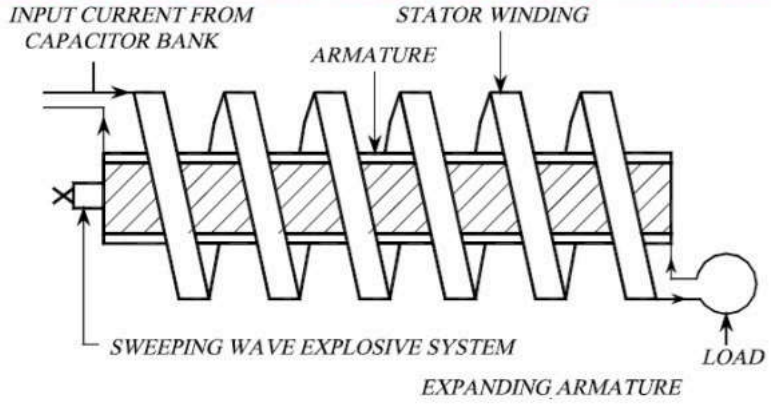
Press Conference: Secretary Granholm & DOE leaders Ann...

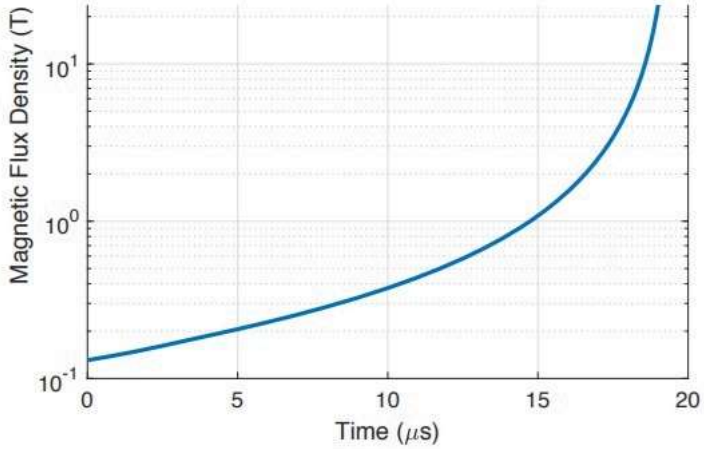




Placing flash x-ray sources in proximity to the D+T gas capsule's hohlraum is an alternative to using a laser beam from far away!

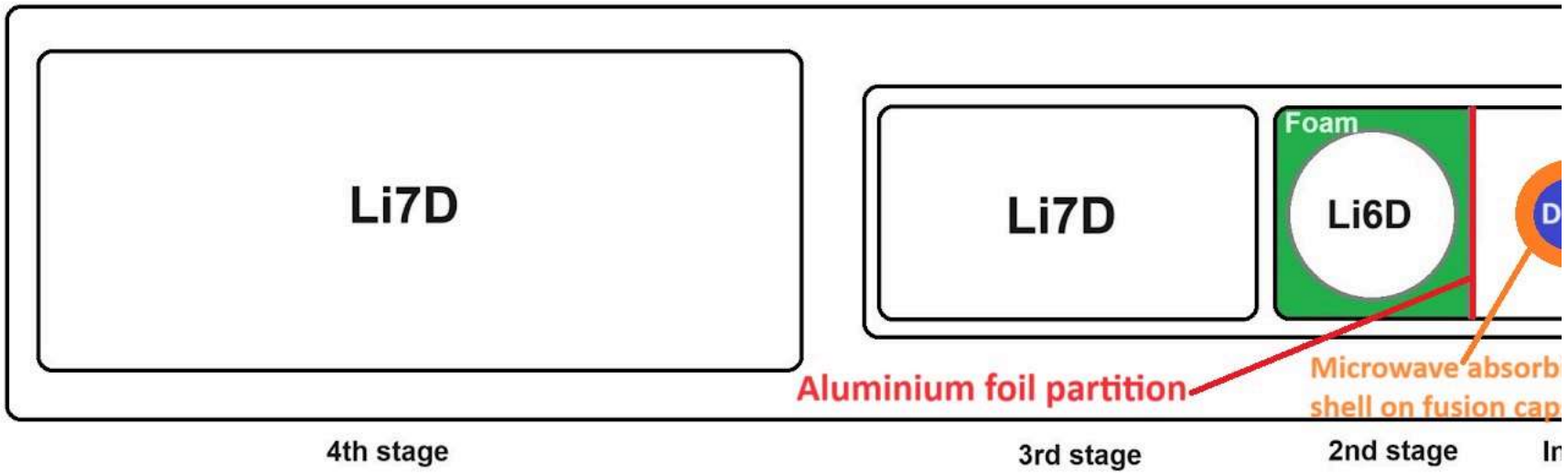
Credit: Nicholas Edward Klugman, MIT, 2020.





Compact explosive driven magnetic flux compression ramping current pulse source for ideally powering the flash x-ray tubes.

ABOVE: as predicted, the higher the x-ray input laser pulse for the D+T initiator of a clean multiplicatively-staged nuclear deterrent, the lower the effect of plasma instabilities and asymmetries and the greater the fusion burn. To get ignition (where the x-ray energy injected into the fusion hohlraum by the laser is less than the energy released in the D+T fusion burn) they have had to use about 2 MJ delivered in 10 ns or so, equivalent to 0.5 kg of TNT equivalent. But for deterrent use, why use such expensive, delicate x-ray lasers? Why not just use one-shot miniaturised x-ray tubes with megavolt electron acceleration, powered a suitably ramped pulse from a chemical explosion for magnetic flux compression current generation? At 10% efficiency, you need 0.5 x 10 = 5 kg of TNT! Even at 1% efficiency, 50 kg of TNT will do. Once the D+T gas capsule's hohlraum is well over 1 cm in size, to minimise the risk of imperfections that cause asymmetries, you

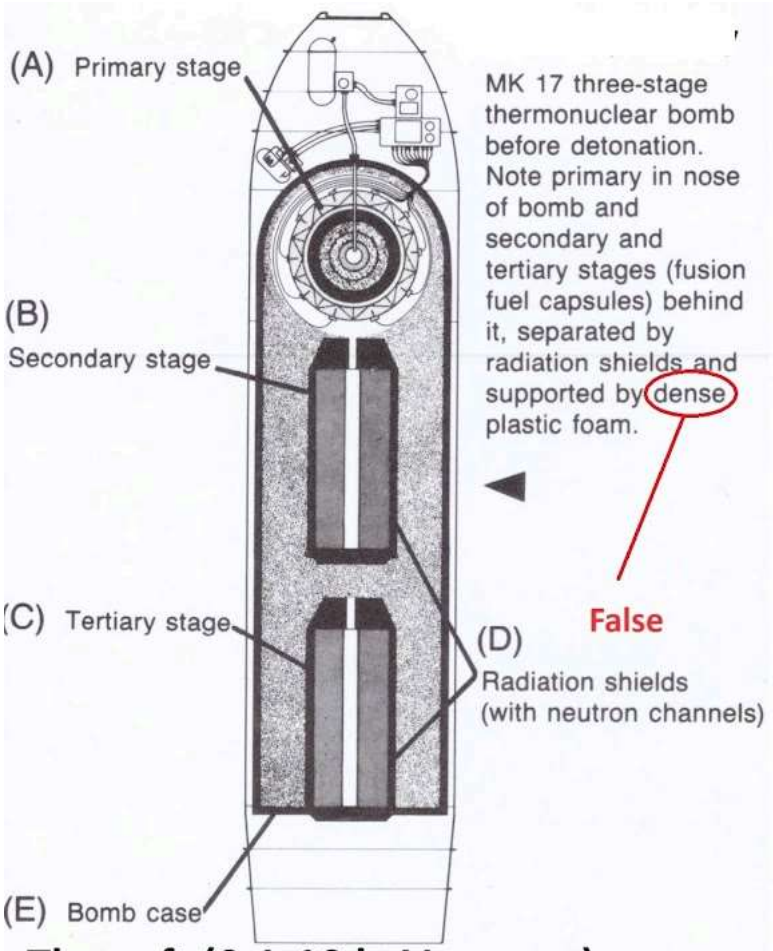


don't any longer need focussed laser beams to enter tiny apertures. You might even be able to integrate many miniature flash x-ray tubes (each designed to burn out when firing one pulse of a MJ or so) into a special hohlraum. Humanity urgently needs a technological arms race akin to Reagan's Star Wars project, to deter the dictators from invasions and WWIII. In the conference video above, a question was asked about the real efficiency of the enormous repeat-pulse capable laser system's efficiency (not required for a nuclear weapon whose components only require the capability to be used once, unlike lab equipment): the answer is that 300 MJ was required by the lab lasers to fire a 2 MJ pulse into the D+T capsule's x-ray hohlraum, i.e. their lasers are only 0.7% efficient! So why bother? We know - from the practical use of incoherent fission primary stage x-rays to compress and ignite fusion capsules in nuclear weapons - that you simply don't need coherent x-rays from a laser for this purpose. The sole reason they are approaching the problem with lasers is that they began their lab experiments decades ago with microscopic sized fusion capsules and for those you need a tightly focussed beam to insert energy through a tiny hohlraum aperture. But now they are finally achieving success with much larger fusion capsules (to minimise instabilities that caused the early failures), it may be time to change direction. A whole array of false "no-go theorems" can and will be raised by ignorant charlatan "authorities" against any innovation; this is the nature of the political world. There is some interesting discussion of why clean bombs aren't in existence today, basically the idealized theory (which works fine for big H-bombs but ignores small-scale asymmetry problems which are important only at low ignition energy) understimated the input energy required for fusion ignition by a factor of 2000:

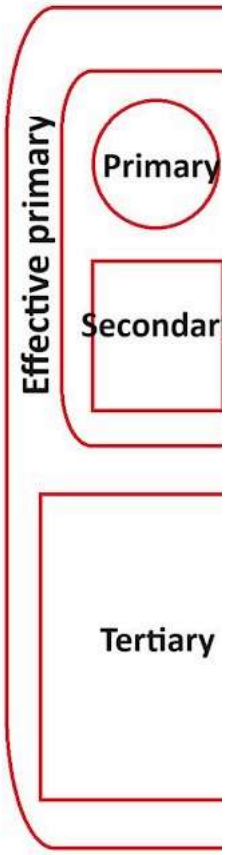
"The early calculations on ICF (inertial-confinement fusion) by John Nuckolls in 1972 had estimated that ICF might be achieved with a driver energy as low as 1 kJ. ... In order to provide reliable experimental data on the minimum energy required for ignition, a series of secret experiments—known as Halite at Livermore and Centurion at Los Alamos—was carried out at the nuclear weapons test site in Nevada between 1978 and 1988. The experiments used small underground nuclear explosions to provide X-rays of sufficiently high intensity to implode ICF capsules, simulating the manner in which they would be compressed in a hohlraum. ... the Halite/Centurion results predicted values for the required laser energy in the range 20 to 100MJ—higher than the predictions ..." - Garry McCracken and Peter Stott, *Fusion*, Elsevier, 2nd ed., p149.

In the final diagram above, we illustrate an example of what could very well occur in the near future, just to really poke a stick into the wheels of "orthodoxy" in nuclear weapons design: **is it possible to just use a lot of (perhaps hardened for higher currents, perhaps no) pulsed current driven microwave tubes from kitchen microwave ovens, channelling their energy using waveguides (simply metal tubes, i.e. electrical Faraday cages, which reflect and thus contain microwaves) into the hohlraum, and make the pusher of dipole molecules (like common salt, NaCl) which is a good absorber of microwaves (as everybody knows from cooking in microwave ovens)? It would be extremely dangerous, not to mention embarrassing, if this worked, but nobody had done any detailed research into the possibility due to groupthink orthodoxy and conventional boxed in thinking! Remember, the D+T capsule just needs extreme compression and this can be done by any means that works. Microwave technology is now very well-established. It's no good trying to keep anything of this sort "secret" (either officially or unofficially) since as history shows, dictatorships are the places where "crackpot"-sounding ideas (such as douple-primary Project "49" Russian thermonuclear weapon designs, Russian Sputnik satellites, Russian Novichok nerve agent, Nazi V1 cruise missiles, Nazi V2 IRBM's, etc.) can be given priority by loony dictators. We have to avoid, as Edward Teller put it (in his secret commentary debunking Bethe's false history of the H-bomb, written AFTER the Teller-Ulam breakthrough), "too-narrow" thinking (which Teller said was still in force on H-bomb design even then). Fashionable hardened orthodoxy is the soft underbelly of "democracy" (a dictatorship by the majority, which is always too focussed on fashionable ideas and dismissive of alternative approaches in science and technology). Dictatorships (minorities against majorities) have repeatedly demonstrated a lack of concern for the fake "no-go theorems" used by Western anti-nuclear "authorities" to ban anything but fashionable groupthink science.**

In the diagram below, it appears that the Mk17 only had a single secondary stage like the similar yield 1952 Mike design. The point here is that popular misunderstanding of the simple mechanism of x-ray energy transfer for higher yield weapons may be creating a dogmatic attitude even in secret nuclear weaponeer design labs, where orthodoxy is followed too rigorously. The Russians (see quotes on the latest blog post here) state they used two entire two-stage thermonuclear weapons with a combined yield of 1 megaton to set off their 50 megaton test in 1961. If true, you can indeed use two-stage hydrogen bombs as an "effective primary" to set off another secondary stage, of much higher yield. **Can this be reversed in the sense of scaling it down so you have several bombs-within-bombs, all triggered by a really tiny first stage? In other words, can it be applied to neutron bomb design?**



C. Hansen's 1988 US Nuclear Weapons book illustration of a Castle-Romeo tested Mk17 (7.52m long, 1.56m diameter, 19 metric tons mass, 11 megatons, un-enriched LiD). It is in error because "dense plastic foam" would stop x-ray channelling and prevent it working. Low density foams are used for two purposes: (1) to slow, disperse and diffuse x-rays energy into shadows around the far end of spherical secondaries for isotropic compression (not needed for axial compression of cylinders), and (2) in clean secondary weapons - including cylindrical secondaries - they delay x-ray compression until primary stage neutrons fission lithium into tritium in the secondary PRIOR to its compression (95% clean Redwing-Navajo had no fissile spark plug in the secondary stage to do this). In a vacuum a 10ns x-ray pulse is R = ct = 3 metres long.



The soft (0.1-10 keV energy) x-rays are easily attenuated and so simply can't be char dense plastic foam; but very low density (approximately air density) foams are used

Update (15 Dec 2023): **PDF uploaded of UK DAMAGE BY NUCLEAR WEAPONS (linked here on Internet Archive)** - secret **1000 pages UK and USA nuclear weapon test effects analysis, and protective measures determined at those tests (not guesswork) relevant to escalation threats by Russia for EU invasion (linked here at wordpress)** in response to Ukraine potentially joining the EU (this is **now fully declassified without deletions, and in the UK National Archives at Kew**):



Hiroshima ground zero (burned out bus in the foreground). Glasstone and Dolan 1977 state (Table 12.17 on p546) that 50% survival outdoors was at 1.3 miles compared to 0.12 miles for concrete buildings. The area of casualties is proportional to the square of the radius, so that being in a modern city centre concrete building reduces outdoor mortality by a factor of 1.3/0.12 squared, or 120.

Glasstone and Dolan show that wooden houses (not found in modern city centres anymore) offer poor radiation shielding, are flammable, and can be destroyed at approximately the ~1.3 miles or 5 psi range for outdoor 50% survival. But in Table 5.160 they show that a simple reinforced concrete arch 8 inches thick with a span of 16 feet and 4 feet of earth cover requires 220-280 psi peak overpressure for collapse.

This nuclear weapons effects data debunks populist media lying claims that there is excessive expense involved in civil defense. The situation is identical to 1930s mass media liars (Angell, Joad, Noel-Baker, et al.) who were awarded "Peace Prizes" for causing WWII by saturation propaganda in the UK mass media claiming gas masks and simple cheap shelters are a deception by war mongering Churchill.

1016 pages summary of UK & USA nuclear weapons test data, Damage from Nuclear Weapons

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MINISTRY OF AVIATION

D1/57

DAMAGE BY NUCLEAR WEAPONS

A MANUAL OF BASIC TARGET RESPONSE DATA

SECURITY NOTE

This document has been issued in parts over an extended period and much of the earlier material now has a lower classification than it carried at the time of issue. Notwithstanding the grading shown on individual sheets dated earlier than March, 1959, the whole of the contents are now covered by the grading CONFIDENTIAL DISCREET.

Prepared by the Director General of Atomic Weapons
Ministry of Aviation.

Originally classified Secret-Atomic; later regrade

SECRET ATO

D 1/57 Aug.1957

9.8.3. Indirect Blast Injury: Casu

Most blast casualties in citie
The occupants may be crushed, trappe
projected by the blast. The number
weapon will, of course, be dependent
afforded by the buildings and upon t
been taken of such protection. For
casualties cannot be expected to be
for Civil Defence planning.

Casualty figures from Hiroshim
applied to Western conditions becaus
construction, and because the popula
aware of the dangers to which they w
been devised (1) in which the estima
(given by the British Mission to Jap
H.E. data from the last war on casua
provide casualty rates for nuclear w

The H.E. material was, of cour
rescue possible in the last war, and
the casualty rates, since organised
the more severely damaged buildings
war. The adjusted rates are given i
derive casualty estimates.

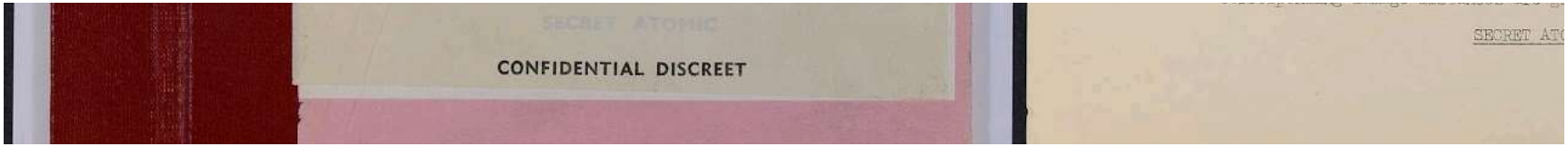
TABLE I. CASUALTY RATES FOR C

DAMAGE CATEGORY	KILLED	SE
A (> 15 p.s.i.)	80%	
B (15-7½ p.s.i.)	40%	
Cb(7½-5 p.s.i.)	-	
Ca(5-1¾ p.s.i.)	-	
D (1¾-1 p.s.i.)	-	

Note: (1) these casualty rates ar
(2) typical 2-storey British
brick walls.
(3) assumed that whole popul
best advantage of prot
(4) for definitions of dama

The pressure ranges for the variou
Table I may be used in conjunction w
curves to derive the extent of damag

American analysis of somewhat limi
concrete structures suggests that on
blast resistance, collapse is associ
Moderate damage may be associated wi
lightly injured and light damage wit
corresponding damage distances are g

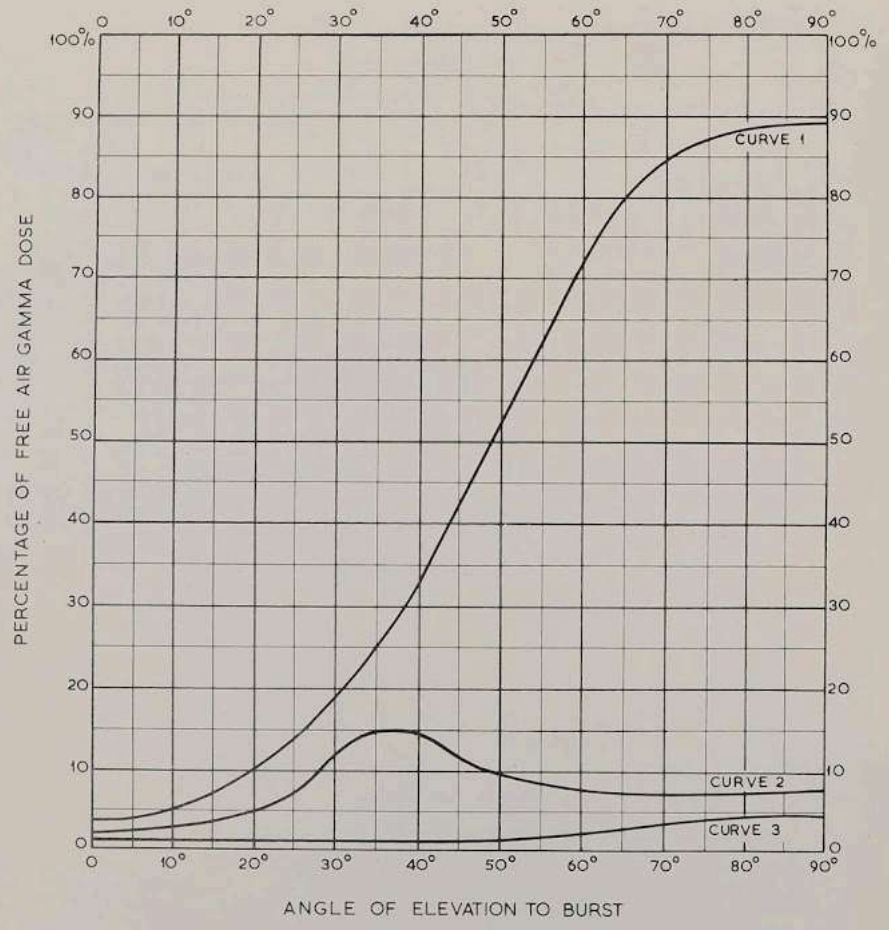

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D.N.W.
FEB.1958

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PART VII
CHAPTER 5
SECTION 5.1.6
FIGURE 1

CURVE 1 OPEN TRENCHES
CURVE 2 TRENCHES WITH 18" RAISED EARTH COVER
CURVE 3 TRENCHES WITH 18" FLUSH EARTH COVER



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D1/57
Mar. 1958

5.2.5 Lethal range of neutrons

The lethal range of neutrons is the di
fallen to the LD-50. It can be assessed,
neutron dose/distance relationship (Figures
if the power of the weapon and its relative
natively it can be deduced from the neutron
the value of the r.b.e. appropriate to the
also known.

Table 1 gives the lethal ranges obtain
with Table 1 of Section 5.2.4, for a number
lethal range of the gamma radiation for com
neutron flux measurements only are availabl
be estimated from these measurements assumi
It will be seen that even for high neutron
lethal range is greater than that of the ne
about 20 KT.

TABLE 1

Lethal Ranges for Neutron and G

Weapon Yield KT	Low Neutron yield weapons			H
	Dose Data	Flux Data		Do Da
		Proton 1.3	r.b.e. 6.5	
1.0	1230	1290	1710	2
10	2100	2130	2670	3
100	3150	3150	3750	4
1000	4290	4290	5040	6

SHIELDING VALUES FOR TRENCHES
AGAINST GAMMA RADIATION

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Area smoke screens were used in World War II to protect important targets from observation, and there is considerable operational experience available from the use of these screens. However, since the opacity requirement and conditions of irradiation are different in the two cases, it is not possible at present to scale up the effect and quantities required and to give a full evaluation.

In the U.S., the use of fog oil smoke has been investigated both in the laboratory and in the field, and has been given a full-scale test in an atomic explosion. It was concluded that 200-400 gallons of fog oil per square mile of screen would reduce the thermal radiation from 10-100 KT weapons detonated at optimum height, to 3 cals/cm^2 or less at points immediately outside the 6-8 p.s.i. blast contour. Further details are given in Reference (2). A theoretical treatment of this problem is given in References (3) and (4).

Thermal attenuation by fog oil smoke is essentially by scattering alone. According to Reference (5), a material which included absorbing properties as well, such as carbon smoke, is likely to prove more economical. The weight of material in suspension could thereby be reduced, probably by a factor of a half or a third.

Reference (6) gives an account of field trials made to assess the attenuation of solar radiation by zinc hexachloroethane (HCE), which is a partial absorber owing to the presence of carbon in the smoke. From the results obtained an estimate is made of the effectiveness of HCE area smoke screens in attenuating thermal radiation from nuclear explosions.

The practical utility of smoke screens, assuming that the quantities and effort required are acceptable, turns very largely upon the frequency of occurrence of suitable weather conditions. It has been estimated that over U.S. cities meteorological conditions are favourable to the formation of smoke screens for 90-95% of the time if area sources of smoke are used, and 40-80% if line sources are employed, (Reference (2)).

References

(1) Staff Officers' Manual - Atomic Weapons Employment, U.S. Dept. of the Army, FM 101-31A p.10. (Secret Atomic)

(2) Engquist, E.H. CRLR.466. "Interim Comprehensive Report on Thermal Radiation Attenuation by Oil - Fog Smoke Screens". U.S. Chemical Corps. 23.3.55.

(3) Chu, C.M., and Churchill, S.W. J.Phys.Chem., 1955, Vol. 59, p.855.

(4) Sliepcevich, C.W. "Attenuation of Thermal Radiation by a Dispersion of Oil Particles", Parts I and II. University of Michigan, 1954.

(5) Ford, J.J. CRLR.252. "Thermal Attenuation Effects of Black

2.2. Diffuse Atmospheric Transmission. Windows.

For an accurate assessment of the amount of the falling on a surface inclined at an angle to the sou surface receiving radiation from a limited field of a window) it is necessary to know the polar distribu on arrival.

Some limited experimental work suggests that th the thermal radiation reaching a surface from a fiel diameter directed towards the source, is given by:-

$$\overline{T}_\beta = \overline{T} + g\,(1 - \overline{T})\,(1 - e^{-\beta})$$

where $\overline{T}$ is the specular transmittance

$\overline{T}_\beta$ is the apparent transmittence for the field

$\overline{T} = e^{-\mu D}$ where μ is the mean attenuation coeffici in the fireball spectrum and D is the distance of th from the point of burst.

In the formula above $(1 - \overline{T})$ represents the amo radiation. g is a constant varying between $\frac{1}{2}$ and 1 of scattered light to the ground. $(1 - e^{-\beta})$ is an e determined by experiment, for the fraction of the sc coming from the field of view β. Extended experimen suggest that doses estimated in this way will in ger the diffuse dose.

A more detailed treatment of the above formula Data Sheet 3.5A and M.E.A.W. Fig. 3.5.2 shows $T\beta$ as various values of β and g.

Detailed mathematical treatments of the radiati have been attempted in References (1) and (2).

A less sophisticated method of attack is to ass reaches the surface in three ways:-

(a) By direct specular transmission.

(b) By two rectilinear (attenuated paths) with scattering between them.

(c) The residual scattered radiation is then a isotropically diffuse and to reach the sou all directions.

Calculations based on this method of analysis a adequately accurate for many purposes. Some experim results are discussed in Reference (3).

Smoke". U.S. Chemical Corps, 10.9.53.

(6) Sawyer, K.F., and Wootten, N.W. "Field Trials on the Attenuation of Solar Radiation by Smoke Screens". Porton Technical Paper (R)1. August, 1956. (Confidential/Discreet)

SECRET ATOMIC

RESTRICTED

TABLE 4

Thermal Constants for Various Materials

Material	Density ρ	Specific heat c	Conductivity K	Diffusivity k
	gm/cm^3	cal/gm	cal/cm/sec/°C	cm^2/sec
WOODS				
Western red cedar	0.36	0.34	21×10^{-5}	1.73×10^{-3}
American white wood	0.47	0.34	29×10^{-5}	2.0×10^{-3}
African mahogany	0.56	0.34	33×10^{-5}	2.0×10^{-3}
Freijo	0.58	0.34	33×10^{-5}	2.0×10^{-3}
Oak	0.61	0.34	35×10^{-5}	2.0×10^{-3}
Iroko	0.72	0.34	41×10^{-5}	2.0×10^{-3}
METALS				
Copper	8.9	0.09	0.93	1.14
Silver	10.5	0.56	1.00	0.171
Gold	9.30	0.03	0.93	1.18
Magnesium	1.7	0.24	0.38	0.91
Aluminium	2.7	0.21	0.48	0.86
Zinc	7.1	0.92	0.27	0.111
Tin	7.3	0.53	0.15	0.038
Brass 70 : 30	8.5	0.09	0.25	0.33
Platinum	21.5	0.03	0.17	0.25
Lead	11.3	0.03	0.08	0.25
(0.1%C) mild steel	7.9	0.12	0.11	0.12
Cast iron	7.4	0.14	0.12	0.12
Bismuth	9.8	0.03	0.02	0.07
Mercury	13.6	0.03	0.02	0.04
BUILDING MATERIALS				
Fibre insulating board	0.24	0.34	8.5×10^{-5}	1.04×10^{-3}
Brick	1.44-2.24	0.20-0.22	$13\text{-}32 \times 10^{-4}$	$44\text{-}67 \times 10^{-4}$
Concrete (gravel)	2.16-2.29	0.22-0.23	$57\text{-}33 \times 10^{-4}$	$65\text{-}120 \times 10^{-4}$
Foamed slag concrete	1.04	0.23	5.7×10^{-4}	24×10^{-4}
Cellular concrete	0.64	0.25	3.4×10^{-4}	21×10^{-4}
Glass	2.11-2.6	0.16	2.1×10^{-3}	5.2×10^{-3}
Slag wool	0.19-0.30	0.18	$0.9\text{-}1.4 \times 10^{-4}$	$26\text{-}27 \times 10^{-4}$
BOARDS OR BLOCKS				
Asbestos paper				
Corrugated	0.25	0.24	1.46×10^{-4}	24.2×10^{-4}
Laminated	0.35	0.24	1.5×10^{-4}	18×10^{-4}
Corkboard	0.13	0.42	1.0×10^{-4}	18×10^{-4}
Fibre glass	0.032	0.13	8.5×10^{-5}	1.9×10^{-2}
POWDERS				
[illegible]	[illegible]	[illegible]	1.2×10^{-4}	26.8×10^{-4}

2.4. Effectiveness of Shielding

Apart from the effects of scattering the thermal a nuclear explosion travels in straight lines from th solid opaque material such as a wall, a hill, or a tr target and the fireball may act as a shield and provi thermal radiation. Instances of such shielding obser explosion in Japan are given in Reference (1).

A shield which merely intervenes between a giver ball of fire, but does not surround the target, may r effective under hazy atmospheric conditions. A large thermal radiation received, especially at considerabl the explosion, has undergone scattering (see Section and will arrive from all directions, not merely that burst. It should also be borne in mind that at close fireball subtends a relatively large angle, the shado intervening objects are less than are experienced wit

An assessment of the value to troops of slit tre against thermal and gamma radiations from nuclear ex Reference (2). It is concluded that open slit trench overall protection to personnel against thermal and g nuclear weapons. Even when least effective (i.e. ag they may be expected to save about 40% of the total (nuclear and thermal radiation) which would result fr the open. This figure increases with decreasing burs maximum of about 97% for low air bursts. Trenches w afford much greater protection than open trenches ag bursts, but about the same protection against low ai

In a report on the vulnerability of Armoured Fi their crews to nuclear weapons (Reference (3)), an a the protection afforded against thermal radiation. closed-down vehicles give good protection against t that there is a possibility of burns being caused by radiation through optical instruments.

Transparent materials such as glass and plastic radiation to pass through only slightly attenuated. window-glass to provide heat radiation shields are d (4). These methods consist in applying a coating to reduces the radiation transmitted and scatters the p mitted. Thus not only is the total quantity of heat reduced, but its intensity is more evenly distribute for this purpose are white, and those that last long gloss or cement paint type; emulsion paints are ine protection is reduced if the windows are blown out b all the thermal energy is delivered.

References

(1) Effects of Nuclear Weapons. U.S.A.E.C., 1957,

Charcoal	0.18	0.29	1.2 x 10^{-4}	0.0014
Ground cork	0.15	0.48	1 x 10^{-4}	0.0014
Soil (Average)	2.5	0.2	23 x 10^{-4}	0.0046
Soil (Sandy dry)	1.65	0.19	6.3 x 10^{-4}	0.0020
Soil (Sandy moist 8%)	1.75	0.24	14 x 10^{-4}	0.0033

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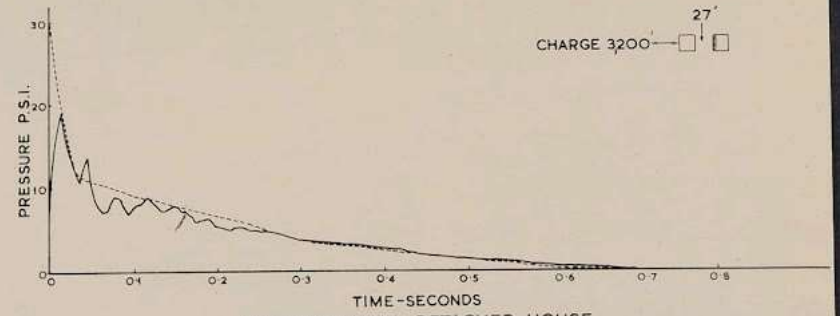
(2) A.O.R.G. Report No. 12/55 "The Protective Value
Trenches against Thermal and Gamma Radiation
Explosions. (Se

SECRET/U.K. EYE

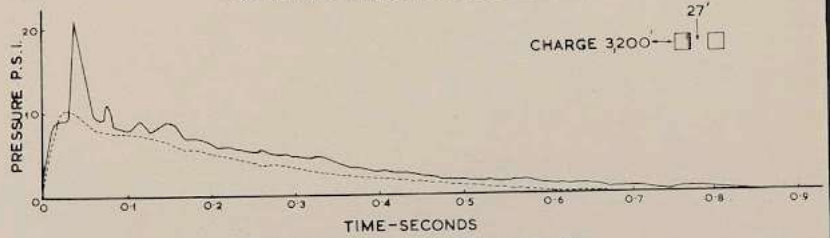
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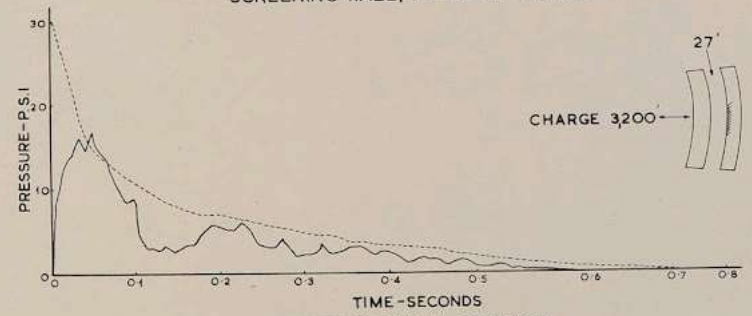
PART III
CHAPTER 3
SECTION 3.2
FIGURE 1



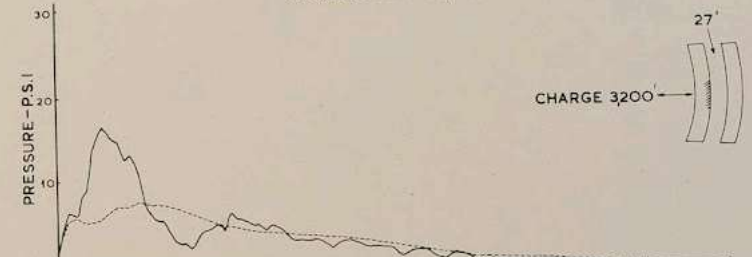
SCREENED WALL, DETACHED HOUSE



SCREENING WALL, DETACHED HOUSE

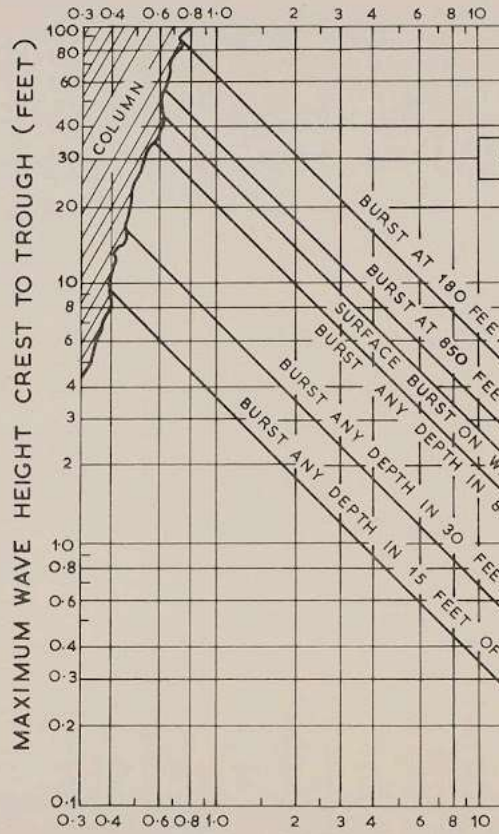


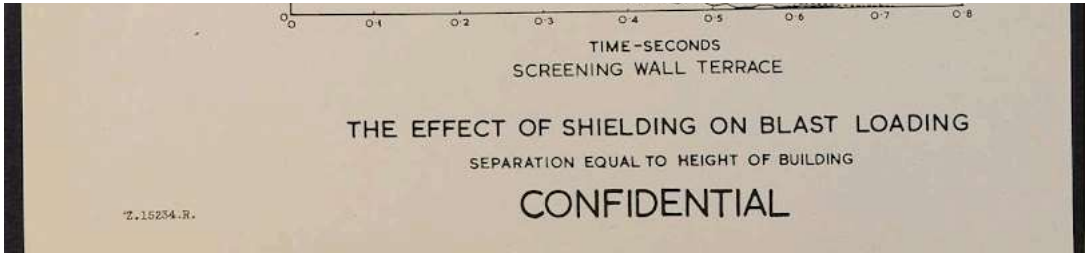
SCREENED WALL, TERRACE

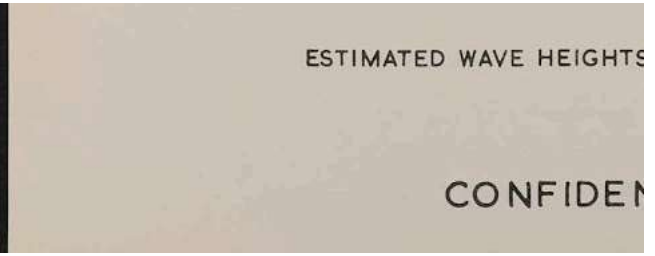


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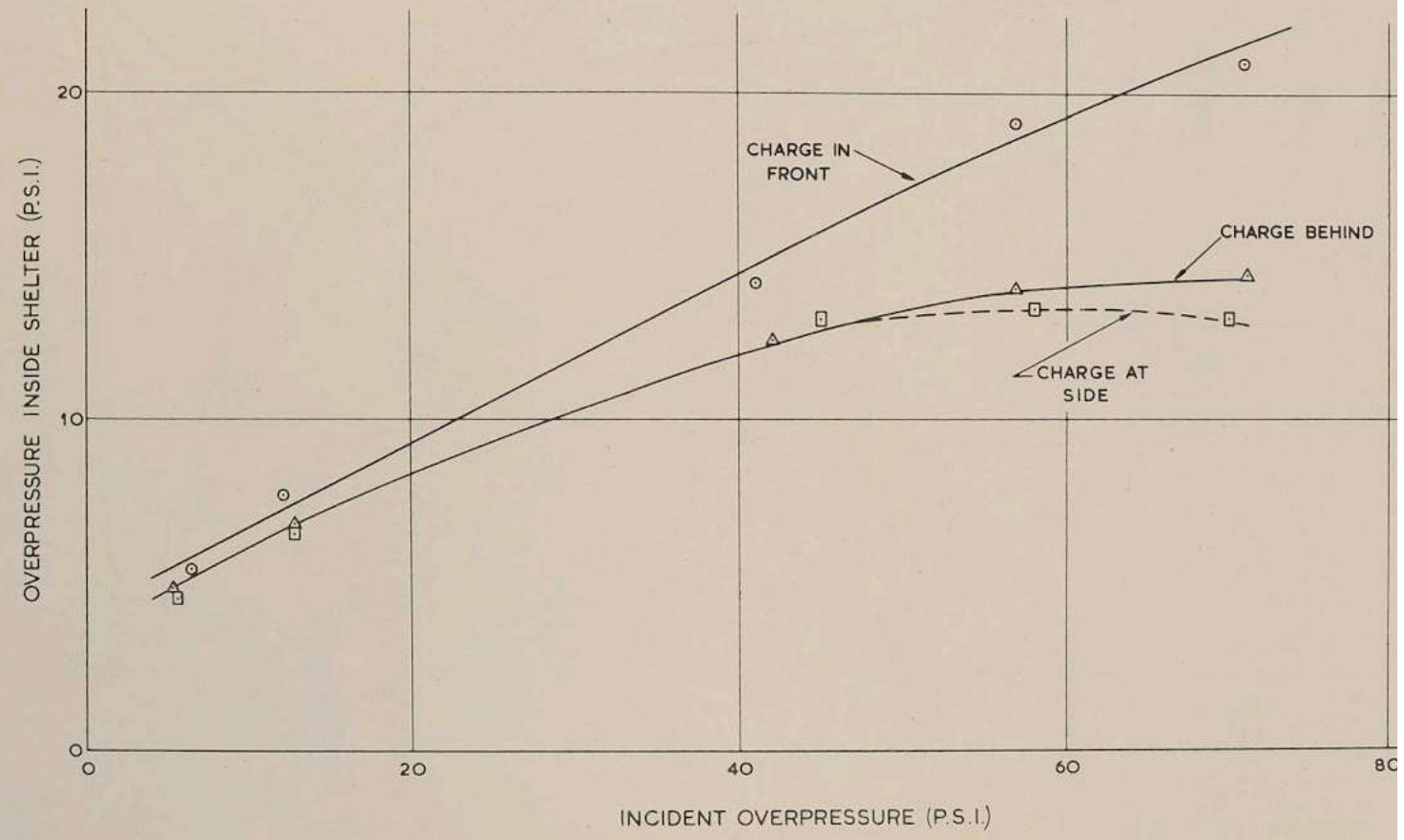

0
0·1
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TIME-SECONDS
SCREENING WALL TERRACE
THE EFFECT OF SHIELDING ON BLAST LOADING
SEPARATION EQUAL TO HEIGHT OF BUILDING
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ESTIMATED WAVE HEIGHTS
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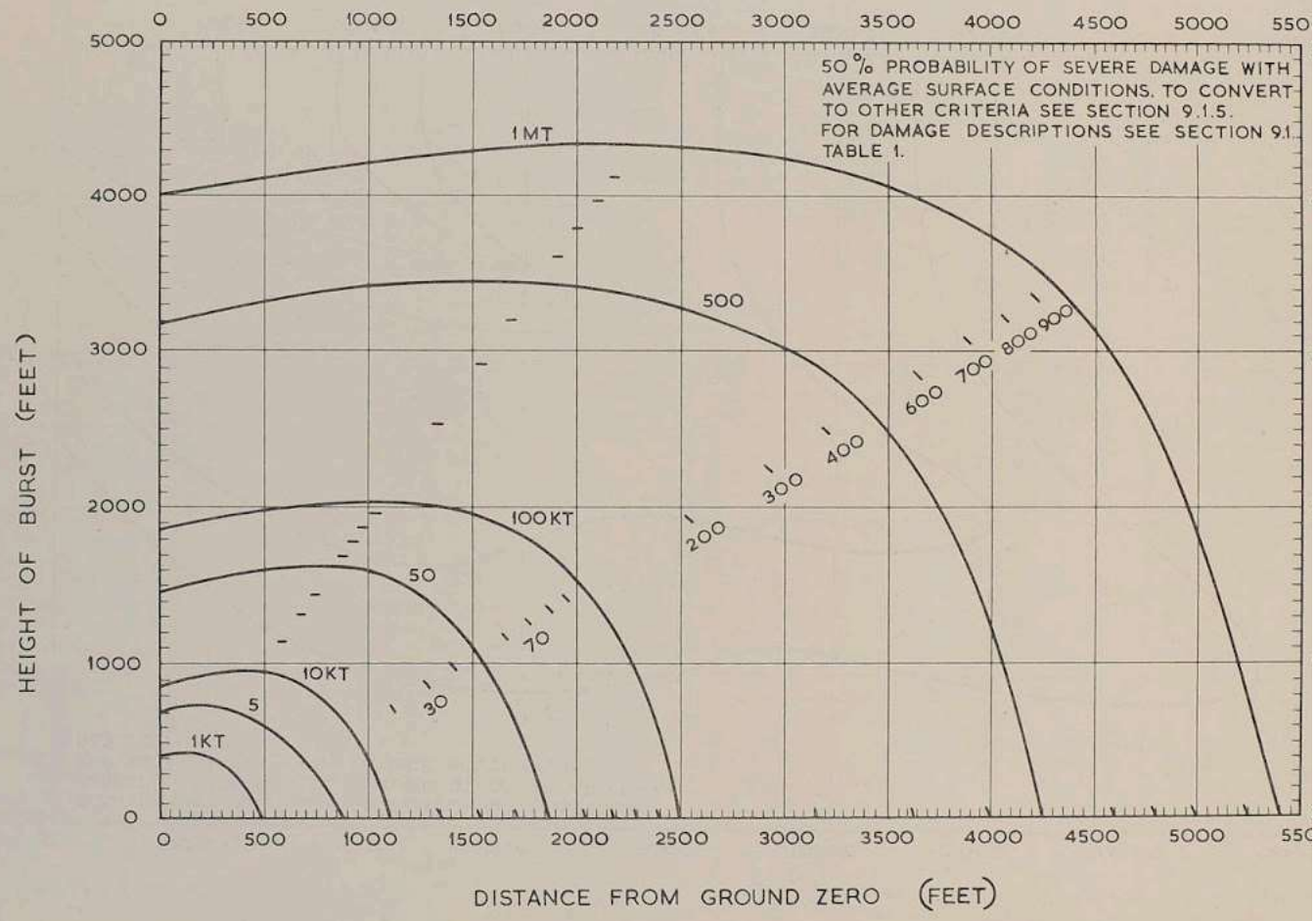
ENTRY OF BLAST INTO A TYPE S.1. SURFACE SHELTER.



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DAMAGE TO REINFORCED CONCRETE 3-STOREY CITADELS WITH REINFORCED CONCRETE WALLS.

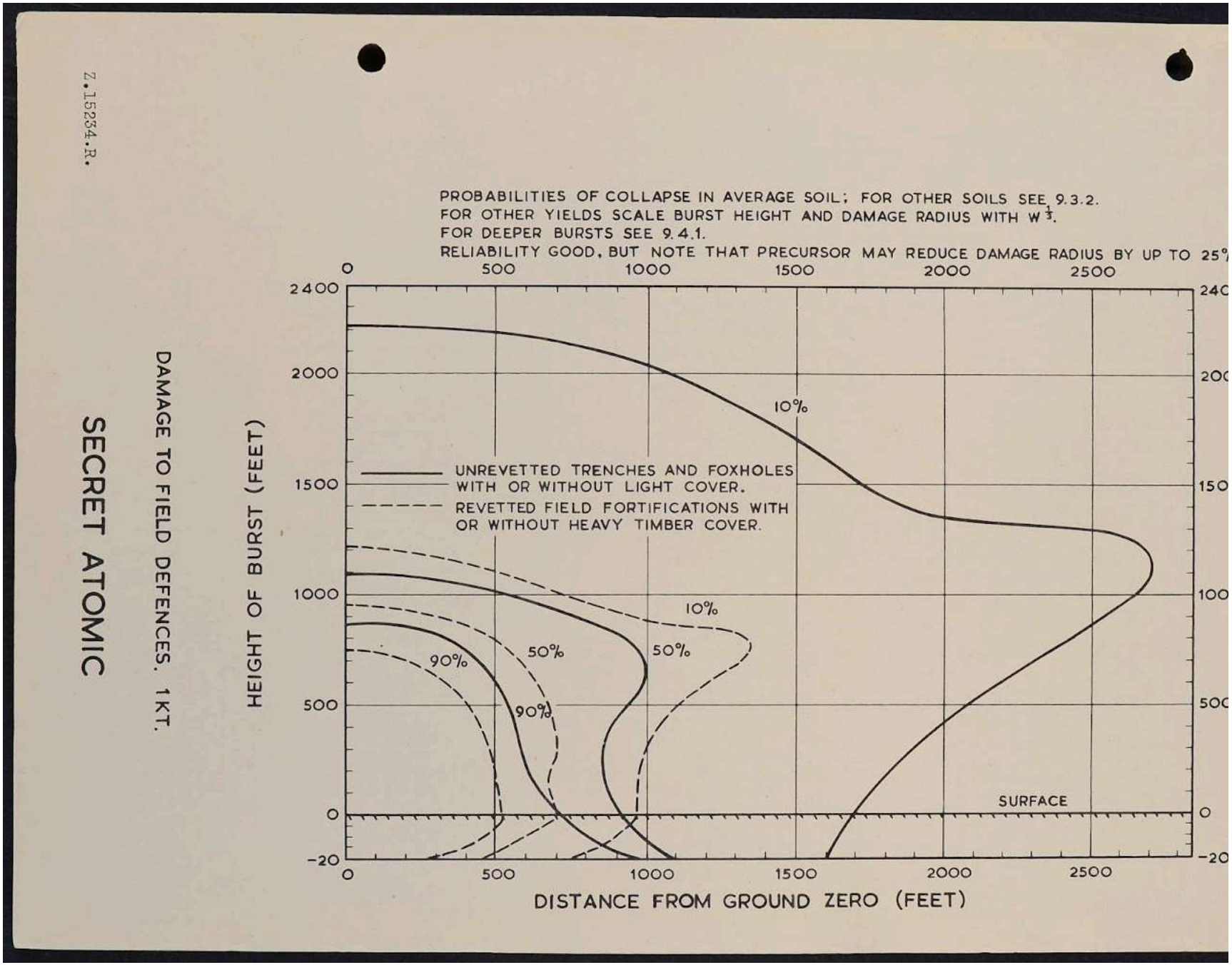
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DAMAGE TO FIELD DEFENCES. 1KT.



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Part III
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Section 9.4.2

9.4.2. Tanks, Armoured Vehicles, Artillery, Ordnance Items, etc. - Tanks and artillery are about equally vulnerable except in the light damage category. Table I indicates which set of curves best fits the experimental data for other items of military ordnance. Examples are also given of damage levels for the various items. In all cases scaling to other yields is with $W^{\frac{1}{3}}$ for height of burst, and with $W^{0.4}$ for damage distances. Note that the curves apply to light and heavy vehicles; light, medium and heavy artillery; and light, medium and heavy tanks. The artillery curves include anti-aircraft artillery except for the electronic fire control equipment, which is discussed in Section 9.4.4. Thermal damage to ordnance equipment is generally superficial, such as scorching of paint and tyres. Canvas covers may be ignited from thermal radiation at energies ranging from 15 - 50 calories per sq. c.m. from a 1 KT burst, depending on composition, weight, impregnation, etc.

TABLE I - DAMAGE TO ORDNANCE ITEMS

Item	Damage Curves Most Closely Related	Examples of Severe Moderate and Light Damage
Tanks, all types	Sect.9.4.2. Fig.1	S- extensive turret, main armament and track damage - possible dismemberment. M- overturning, track and turret damage. L- antenna damage.
Artillery	Sect.9.4.2. Fig.1.	S- extensive recoil mechanism, wheel and trail damage, possible dismemberment. M- bent and twisted trails, some recoil mechanism damage, wheels may be torn off. L- sight glass breakage.
Mortars and recoilless rifles	Sect.9.4.2. Fig.1 (for light damage use artillery curve)	S- Dismemberment. M - Twisted standards and mountings L- Sight breakage
Small arms and machine guns	Sect.9.4.2. Fig.1 (for light damage use artillery curve)	S- Dismemberment. M - Broken stocks, twisted and broken mountings. L - Cracked stocks
Rocket launchers	Sect.9.5.3. Fig.1	S-Torn to pieces. M - Twisted tube. L-Sight damage
LVT's and DUKW's (on land)	Sect.9.5.3. Fig.1	S- Great distortion and possible rupture of hull. M - Hull distortion, track damage. L - Glass breakage

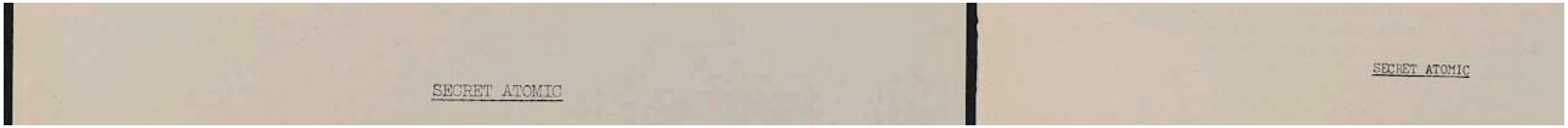
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Section 9.4.3

TABLE I - Overpressures in p.s.i. Required to
Various Mines

Country	Mine	0"-12" Depth of Burial				
		Percent detonations - 90%		10%		
		Rise Time		Rise Time		R
		Fast	Slow	Fast	Slow	Fa
Belgium	PRB ND-49 Heavy Model A/T	20	30	17	25	30
	PRB ND-49 Light Model A/T	20	30	17	25	30
France	Model 1947 A/T	3	3	(*)	(*)	5
	Model 1948 A/T	15	20	10	15	20
	Model 1948 Plate Charge offset pressure	4	4	1.5	1.5	6
	Model 1951 Undetectable buried spider plate	5	5	2	2	7
	Model 1951 Shaped Charge, steel, offset pressure	4	4	1.5	1.5	6
	Model 1951 Shaped Charge, bakelite offset pressure	10	15	8	12	15
	Model 1948 A/P	4	4	1.5	1.5	6
Germany	TMI-35 A/T	4	4	1.5	1.5	6
	TMI-35 Steel A/T	4	4	1.5	1.5	6
	RMI-42 A/T	17	25	15	20	25
	SCHU A/P	2	2	(*)	(*)	3
Italy	CS 42/2 A/T	4	4	1.5	1.5	6
	CS 42/3 A/T	4	4	1.5	1.5	6
	CC 48 Shaped Charge A/T	7	7	3	3	9
	P-1 A/T	12	18	9	14	18
	P-2 A/T	12	18	9	14	18
	R A/P	2	2	(*)	(*)	3
	RM A/P	2	2	(*)	(*)	3
Turkey	4.4 A/T	7	7	3	3	9
	9.9 A/T	4	4	1.5	1.5	6
U.K.	Mark V (HC) - Buried Spider Plate	10	15	7	11	15
	Mark V (CS) - Buried Spider Plate	10	15	7	11	15
	No.5 Mk. 1 A/P	3	3	(*)	(*)	5
	No.75 Mk.II	7	7	3	3	9
U.S.A.	M-6 A/T	10	15	7	11	15
	M-7 A/T	35	35	30	30	35
	M-15 A/T	10	15	7	11	15
	M-14 A/P	7	7	3	3	9
	T-18 A/T	10	15	8	12	15
	T-20 A/P	3	3	(*)	(*)	5
U.S.S.R.	YAM-5 A/T	15	15	11	11	15
	YAM-5K A/T	14	14	10	10	14
	YAM-5M A/T	16	16	12	12	16
	YAM-5U A/T	15	15	11	11	15
	TMS-B A/T	5	5	3	3	8
	TMD-B A/T	15	15	11	11	15
	TM-41 A/T	25	35	20	30	35
	PMP-6 A/P	2	2	(*)	(*)	3
	PMD-7 A/P	2	2	(*)	(*)	3

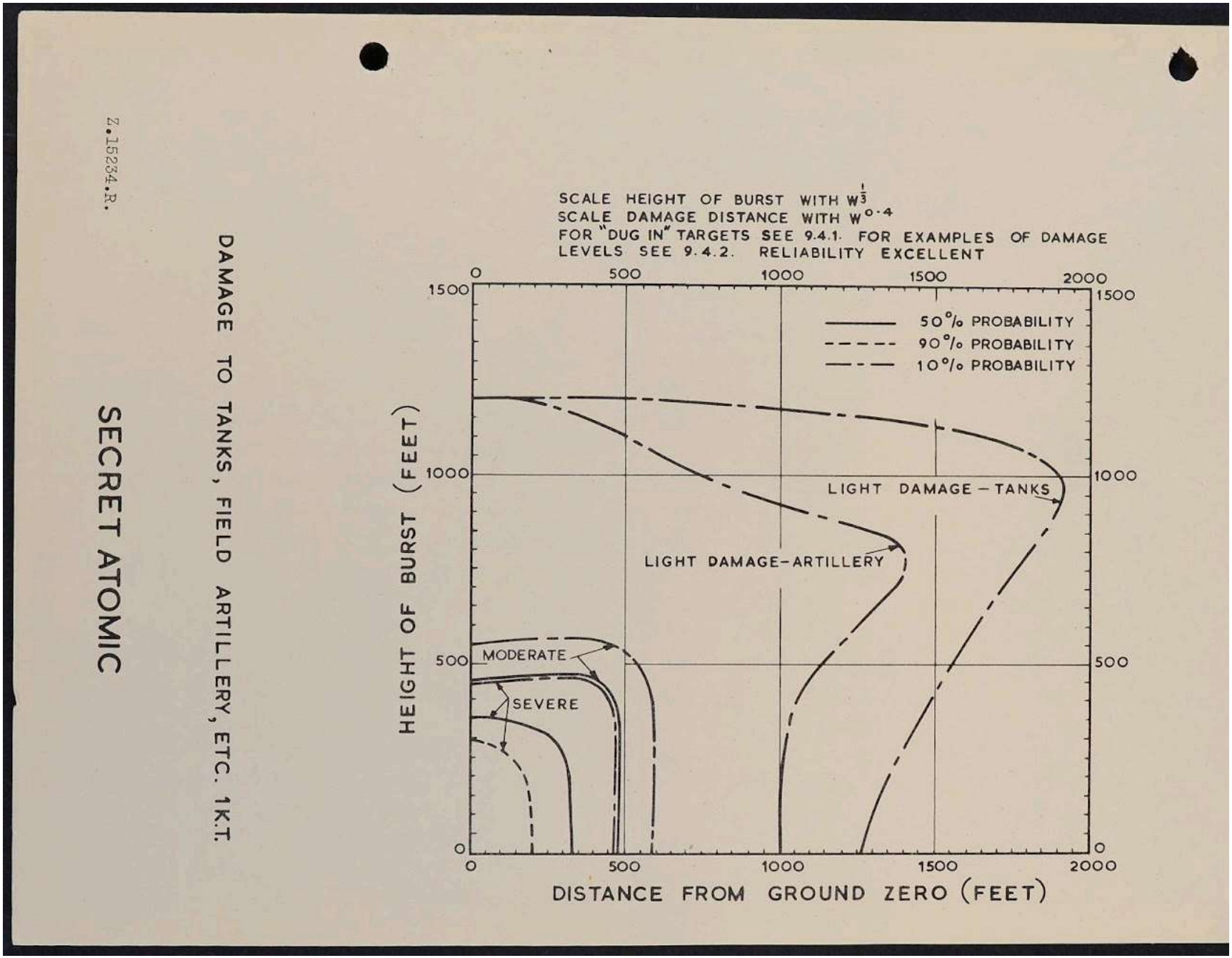
* These mines may detonate in significant percentages at very low pre
1.5 p.s.i.


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DAMAGE TO TANKS, FIELD ARTILLERY, ETC. 1K.T.

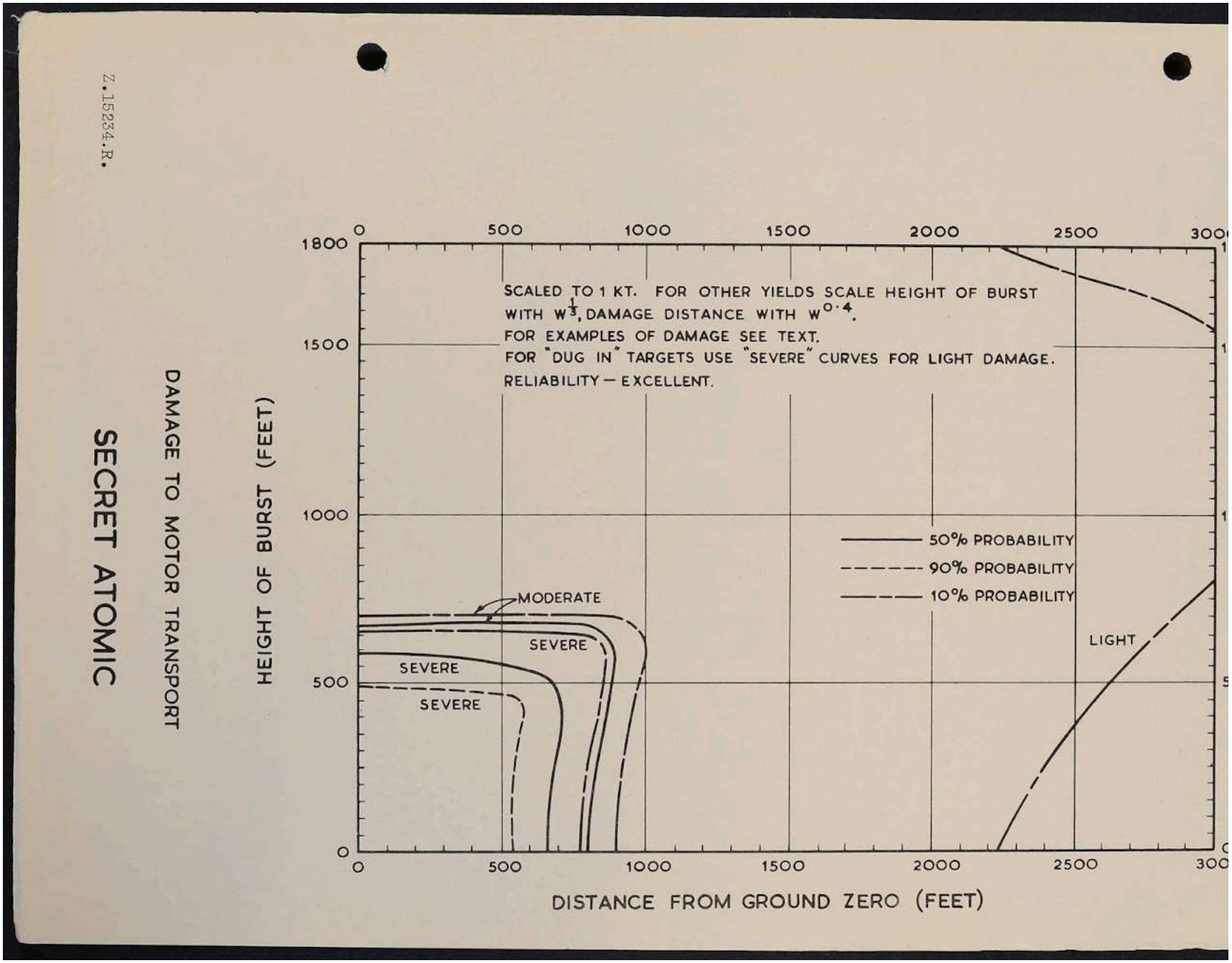
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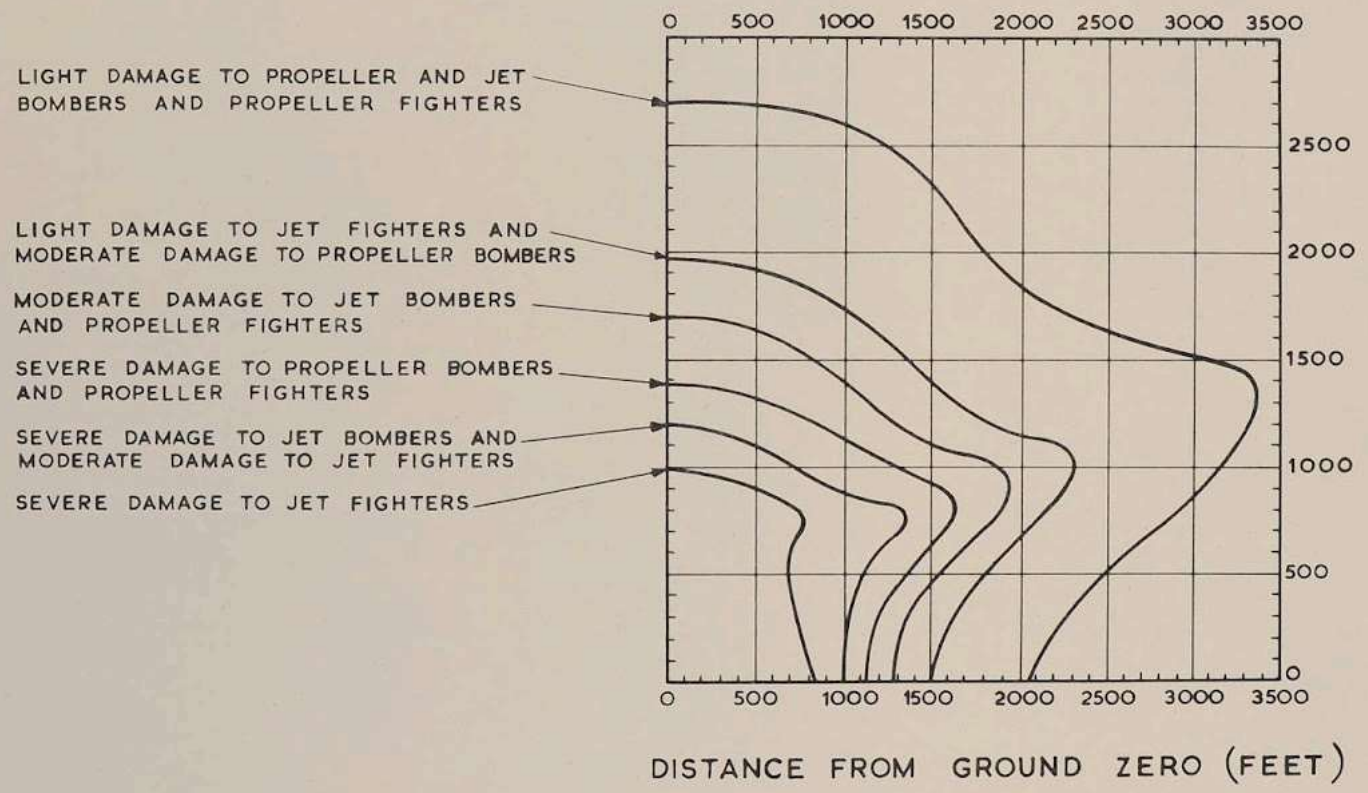
DAMAGE TO MOTOR TRANSPORT



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DAMAGE TO AIRCRAFT ON THE GROUND.
COMBAT TYPES, NOSE-ON ORIENTATION

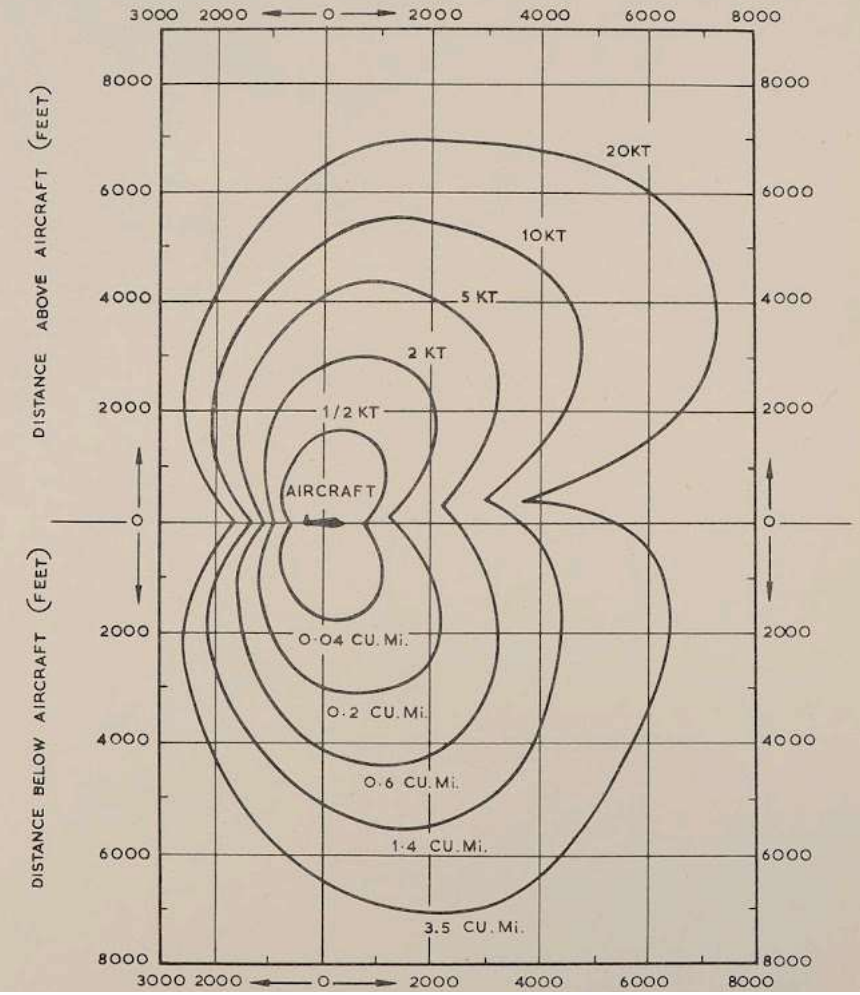


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PART III
CHAPTER 9
SECTION 9.6.3.
FIGURE 1

THESE CURVES ARE PRESENTED PRIMARILY TO ILLUSTRATE GENERAL SHAPES AND MAGNITUDES OF LETHAL GUST ENVELOPES FOR BOMBER TYPE AIRCRAFT. IT IS NOT INTENDED THAT NUMERICAL DATA DERIVED BE APPLIED DIRECTLY TO ANY SPECIFIC AIRCRAFT MODELS. CUBE ROOT SCALING OF THE 20 KT CURVE WILL INDICATE APPROXIMATE ENVELOPES FOR LARGER YIELDS.



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9.7. SHIPS AND MARITIME OBJECTS

9.7.1. Surface Vessels *

In addition to damage by water shock in Part V, mechanical damage to surface s Thermal damage to shipping is not conside it does not, of itself, cause sinking or a burst is decreased, a transition from w controlling damage parameter occurs. Air damage parameter in the case of air burst a satisfactory parameter for estimating d A peak overpressure of 5 p.s.i. causes li surface ships. The peak overpressures re from 25 p.s.i. for destroyers, to 45 p.s. and 2 give damage ranges for a 1 KT burst than 600 ft., and depths of burst less tha scale with $W^{\frac{1}{3}}$ for other yields, although data available only fair reliability can become less reliable at the shallower dep of peak overpressure required to cause sh for use with burst heights greater than t For these burst heights distances to whic are obtained from the usual height of bur

TABLE I - Surface Ship Peak Air Overpr

	Peak Air	
	Severe	M
Aircraft Carriers	30	
Battleships	45	
Cruisers (heavy)	40	
Cruisers (light) (AA)	30	
Destroyers	25	
Pontoons (for pier construction)	60	
Transports	30	
LSTs & Landing Craft and Landing Vehicles	25	
Submarines (surfaced)	80	

The damage levels are defined as follo

Severe - (Probable sinking). The s to the extent of requiring

Moderate - (Immobilisation) The ship This includes damage to ce or to their foundations, s boilers, and damage to int



Light This category includes dama
and mechanical equipment;
be able to operate effecti

* Note: this information is of American origin, wh
indicate somewhat greater damage radii correspond

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November, 1958

Part VI
Chapter 5
Section 5.2

5.2. The Results of Atomic Weapon Tests on Forest Fuels

During the U.S. Atomic Weapon Test "Operation Snapper", measurements were made of the minimum thermal energies required to ignite common forest fuels, (Reference (1)). Observations were also made to determine blast wave effects on the persistence of ignition and to provide field data against which laboratory source tests could be scaled.

Prepared fuel beds of conifer needles, hardwood leaves, grasses and rotton wood, were exposed in Operation Snapper to total thermal energies varying from 1 - 22 cals/sq.cm. Thickness and density of fuel particles were determined prior to the test. Fuel moisture at shot time was measured in duplicate field beds, similarly located, but outside the test area.

Post test fuel examinations showed that decayed materials and fine grasses ignited and continued to burn at distances from Ground Zero where the total thermal energy was approximately 3 cals/sq.cm. Following shots 3 and 4, decayed materials were still burning upon recovery at H + 2 hours. The following conclusions were made from the test results.

(i) Under fire-weather conditions (relative humidity less than 40%, air temperature greater than 35°F, fuel moisture less than 15%) in a forest area, atomic explosiions can be expected to ignite decayed and fine grassy fuels wherever the total thermal energy exceeds 3 cals/sq.cm.

(ii) Minimum ignition energies have been established to within approximately ± 10% for common wild-land fuels - pine needles, hardwood leaves, grasses and rotted materials.

(iii) Rotted or decayed materials and fine grasses which are ignited at low energy levels by atomic explosions, can spread fire to associated fuels which would not otherwise have been ignited.

(iv) Sparse tree crowns exposed to energies of 22 cals/sq.cm. effectively shade dead surface fuels so that few ignitions of these fuels can occur in their shadow. Dense green forest stands, with 100% crown closure, should offer few, if any, ignition points where persistent ignition and fire would occur.

References

(1) Operation Snapper, Project S .1. The Effect of Atomic Explosions on Forest Fuels. WT-506, AFSWP. (Confidential)

TABLE I - Damage to Aircraft at Operation Buffalo

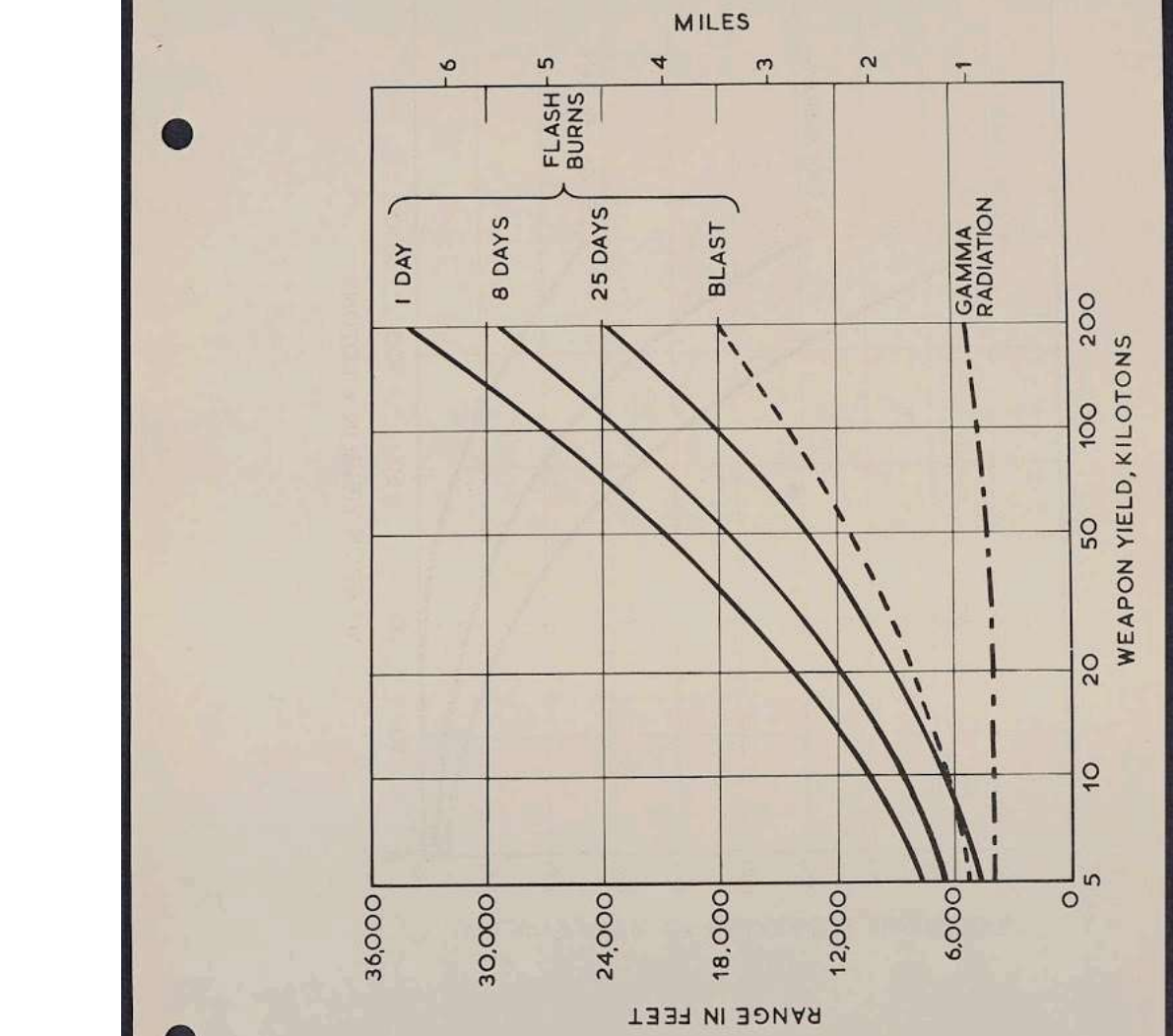
Feet From GZ	Total Heat Dose cals/cm²	Annealed Panel	Vampire Winds
1840	64	All glass layers cracked 1st layer 6 in. crack 2nd layer 3 in. crack 3rd layer 7 in. crack 4th layer 4 cracks max. length 6 in. Both exposed glass surfaces pitted	Broken in two, face missing, remaining gl layers heavil cracked. Som separation of inter-layer along cracks. Front face hea pitted
2070	48	Back two layers cracked. Rear 0.2 in layer three cracks maximum length 4 in. Rear 0.5 in. layer 4 in. crack. Front face pitted.	Rear face miss Otherwise no cracks. Front face heavily pitted
2560	32	Back layer cracked (2 in. length). Front face pitted.	Rear face heav cracked. Front face heavily pitte
2950	24	No cracks. Front face slightly pitted.	No cracks. Front face slightly pitt
3570	16	No cracks Front face slightly pitted	No cracks Front face slightly pitt
4050	12	No cracks Front face very slightly pitted.	No cracks. Front face ver slightly pitt


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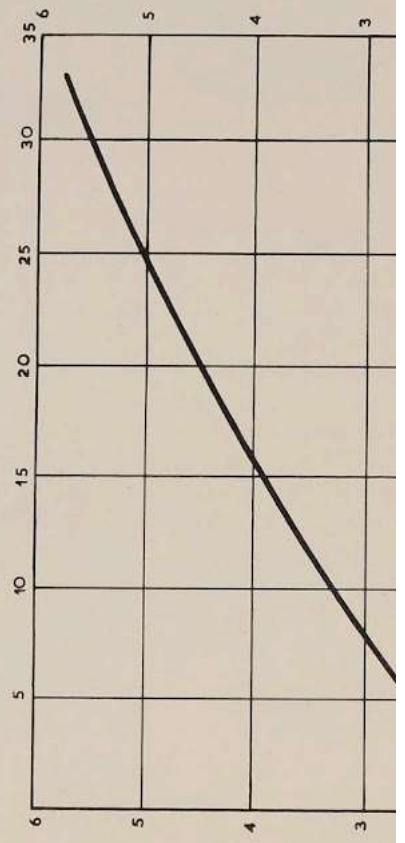
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PART VI
CHAPTER 7
SECTION 7.5.1
FIGURE 1



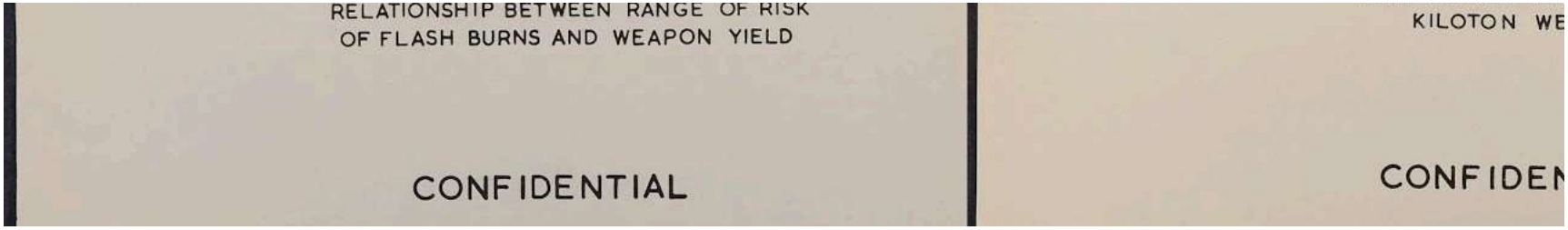
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ES PER SQ. CM
DENT ENERGY IN

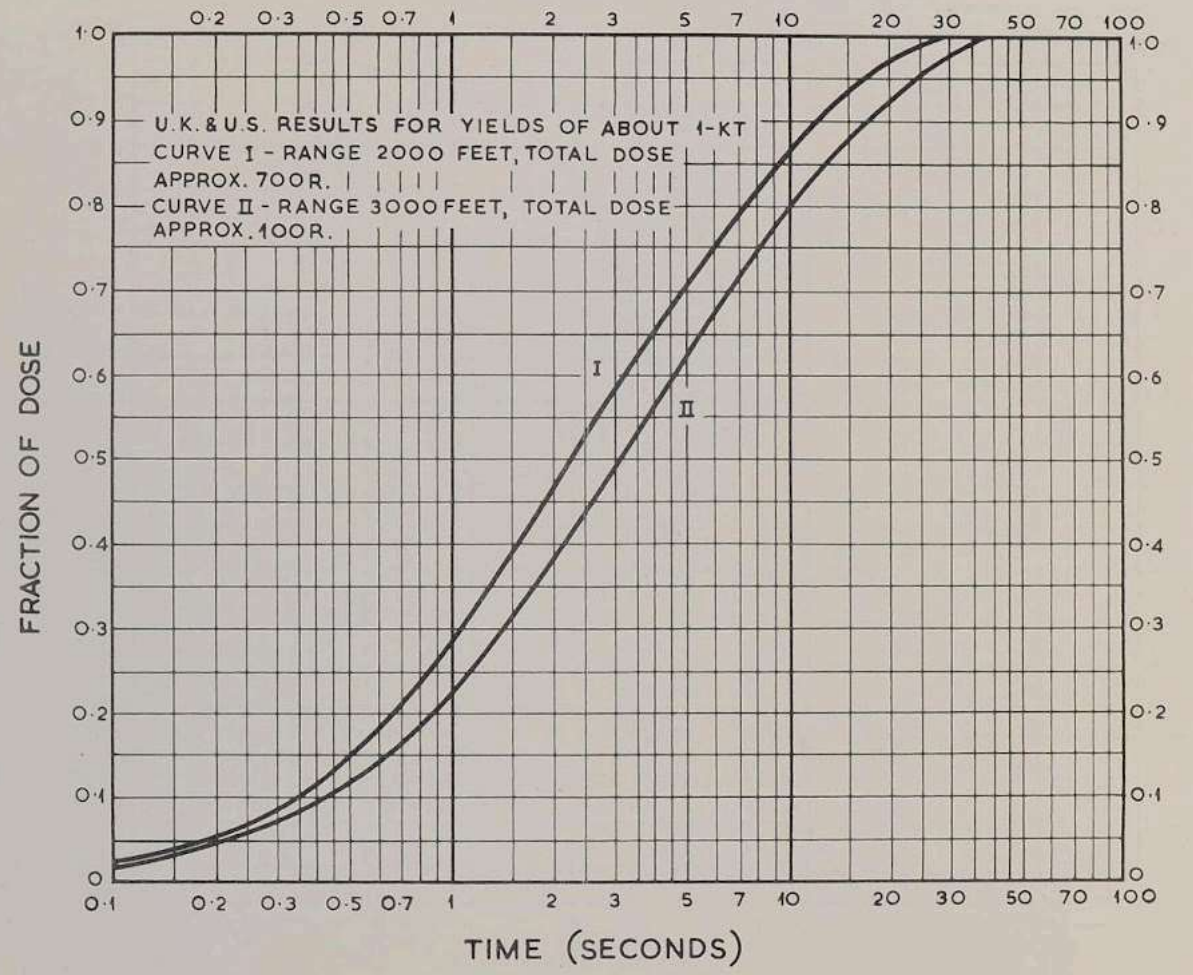
HEALING TIME OF
WHITE LIGHT FL


RELATIONSHIP BETWEEN RANGE OF RISK
OF FLASH BURNS AND WEAPON YIELD
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DELIVERY OF GAMMA DOSE IN TIME

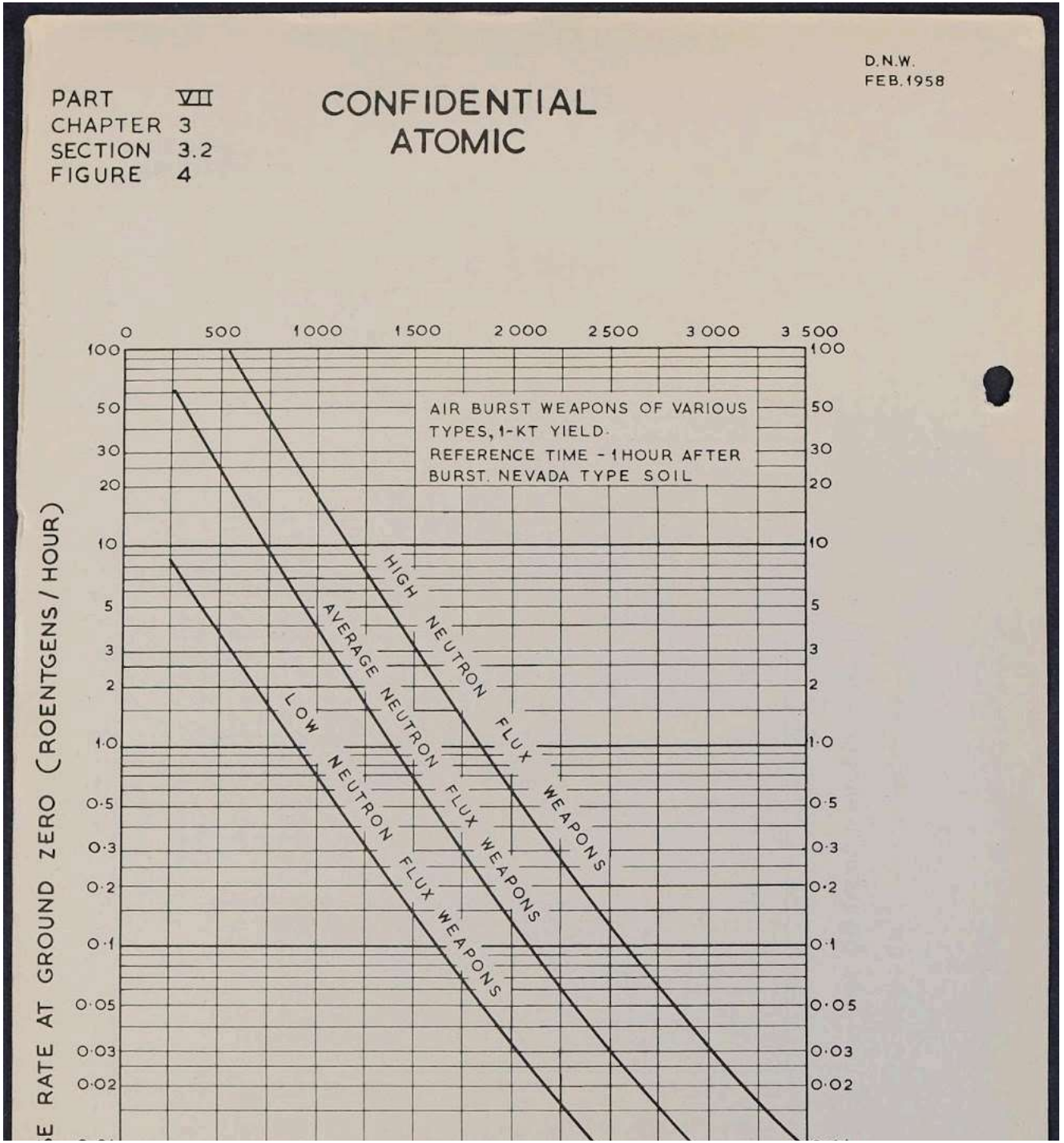
SURFACE BURST

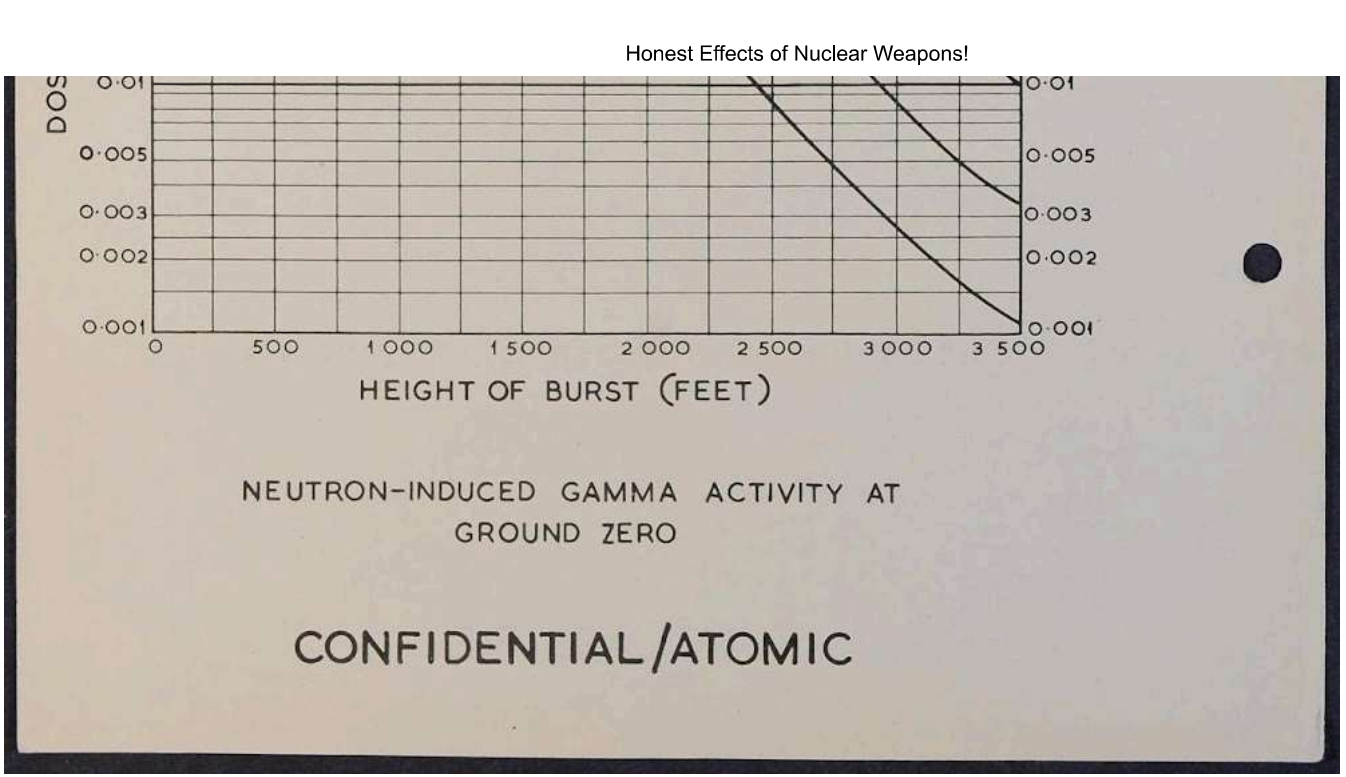


PART VII
CHAPTER 3
SECTION 3.2
FIGURE 4

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FEB. 1958





NEUTRON-INDUCED GAMMA ACTIVITY AT GROUND ZERO

CONFIDENTIAL/ATOMIC

5.1.6 Shielding by some common structures

The shielding data for parallel beams of radiation falling on simple shields are only of limited value in dealing with the protection afforded by actual structures. A few results are available from trials of weapons in the kiloton range and these, together with the results of some theoretical studies, are given here:-

(i) Concrete cubicles

At Operation Hurricane (Reference (1)) a number of concrete cubicles were built and gamma ray attenuation measurements were made by means of film badges placed across each cubicle, all at a height of 6 ft. The concrete had a density of about 133 lb./cu.ft. and the cubicles had sides 12 ft. long and 12 ft. high. The following results were obtained:-

Wall thickness (inches)	No. of badges	Attenuation Factor Average	Range
$6\frac{3}{4}$	4	0.16	0.15 - 0.20
$9\frac{3}{4}$	3	0.096	0.082 - 0.12
12	4	0.064	0.057 - 0.079

Further observations on the penetration of concrete slabs by initial gamma radiation were made at Operations Totem and Buffalo (see also Section 5.1.5 of this chapter). It would appear from the evidence available (Reference (2)) that the gamma radiation from Buffalo Round 1 was substantially harder than that from Totem Round 1. The Buffalo half-thickness was about $4\frac{3}{4}$ inches of concrete (or 51 lb./ft.^{2}) compared with the Totem half-thickness of about $1\frac{3}{4}$-$2\frac{1}{2}$ inches of concrete (or 20-29 lb./ft.^{2}). The American data summarized in Reference (5) are more nearly in accord with the Buffalo results.

(ii) Anderson Shelters

A limited amount of information on these shelters was obtained at Operation Hurricane (Reference (1)). Owing to the irregular shape of this type of shelter, and the impossibility of maintaining a constant soil coverage, the results vary from one shelter to another. On average however, it was found that the attenuation factor in that part of the shelter which was above ground was about 0.03, while for the underground part of the shelter the factor was about 0.02. The penetration of Anderson shelters by initial gamma radiation was also studied at Operation Buffalo (Reference (2)) but the results showed considerable variation. A mean attenuation factor of about 0.05 was obtained.

(iii) Trenches

The protection afforded by trenches has been studied by A.O.R.G. (Reference (3)), and information obtained from tests with slit trenches and circular holes at Operation Totem, has been reported (Reference (4)).

The protective value of a trench depends on several factors, such as depth, orientation, nature of soil, amount and type of cover, angle of elevation to the burst, and the position at which the dose is measured. Some average figures for trenches 6' x 2' x 4'6" deep have been taken from the

stated heights on the centre line of each hole.

TABLE 1

Gamma Attenuation Factors for Circular Pits at Op

Depth below surface (inches)	Distance from Ground Zero and Ext					
	1710 ft. (1100Or)		2720 ft. (950r)		3760 ft (110r)	
	Open	Closed	Open	Closed	Open	Close
0	1.0	96	1.0	63	1.0	78
6	2.1	100	3.7	56	2.8	55
12	3.8	105	7.3	53	5.2	52
24	12	120	16	79	13	100
36	21	150	29	155	24	165
48	38	190	45	250	39	240
60	58	310	63	320	52	330
72	92	610	86	380	61	380

Information on initial gamma attenuation factors, source (Reference (5)), is listed in Table 2.

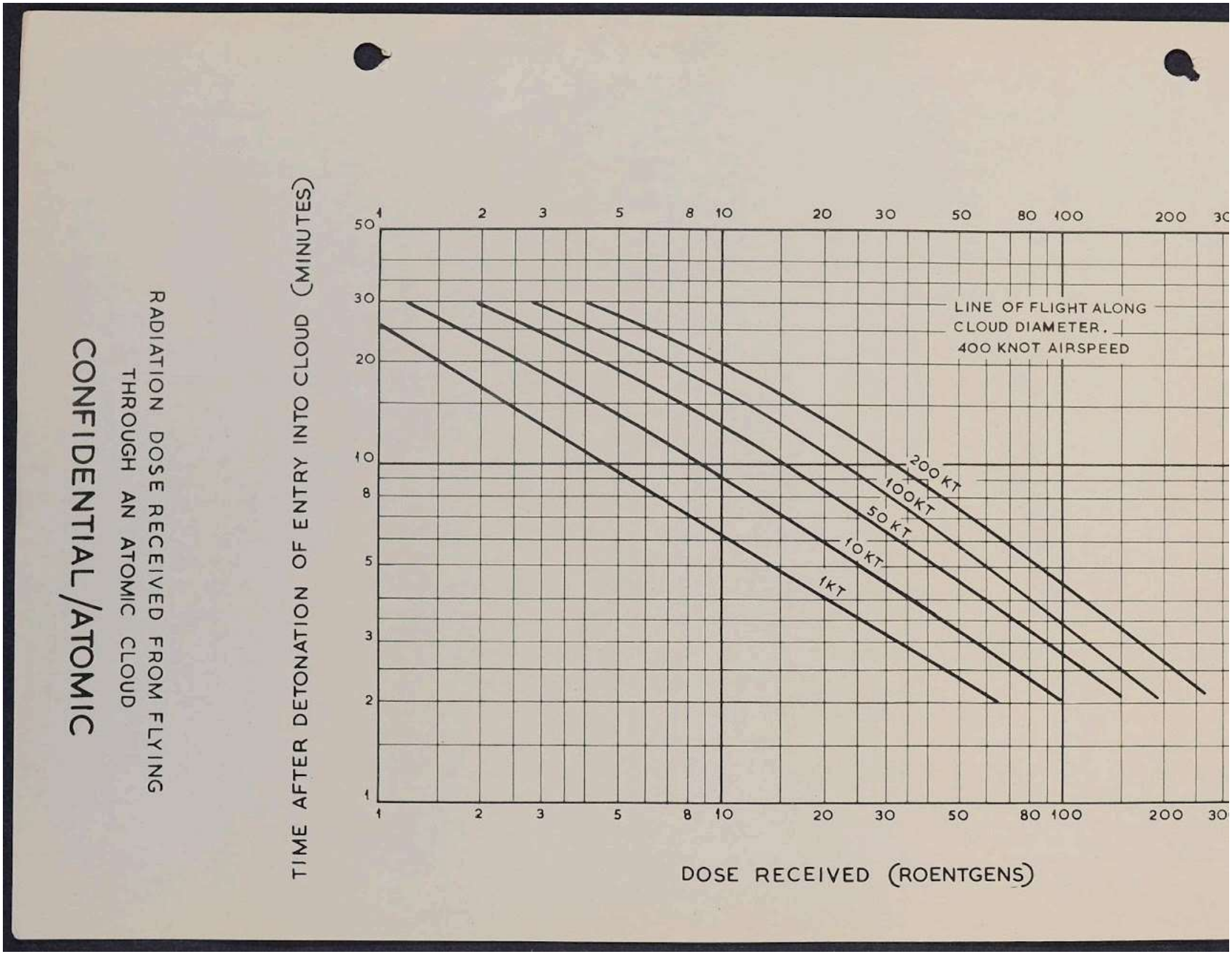
A.U.K.G. Report (Reference (3)) and are shown in Figure 1. Some values for gamma attenuation factors for circular pits at Operation Totem (Reference (4)) are given in Table 1. These pits were 6 ft. deep and 4 ft. in diameter, and those designated 'closed' were completely covered by an 18 inch thick layer of sandbags. The dose measurements were made with film badges mounted at the

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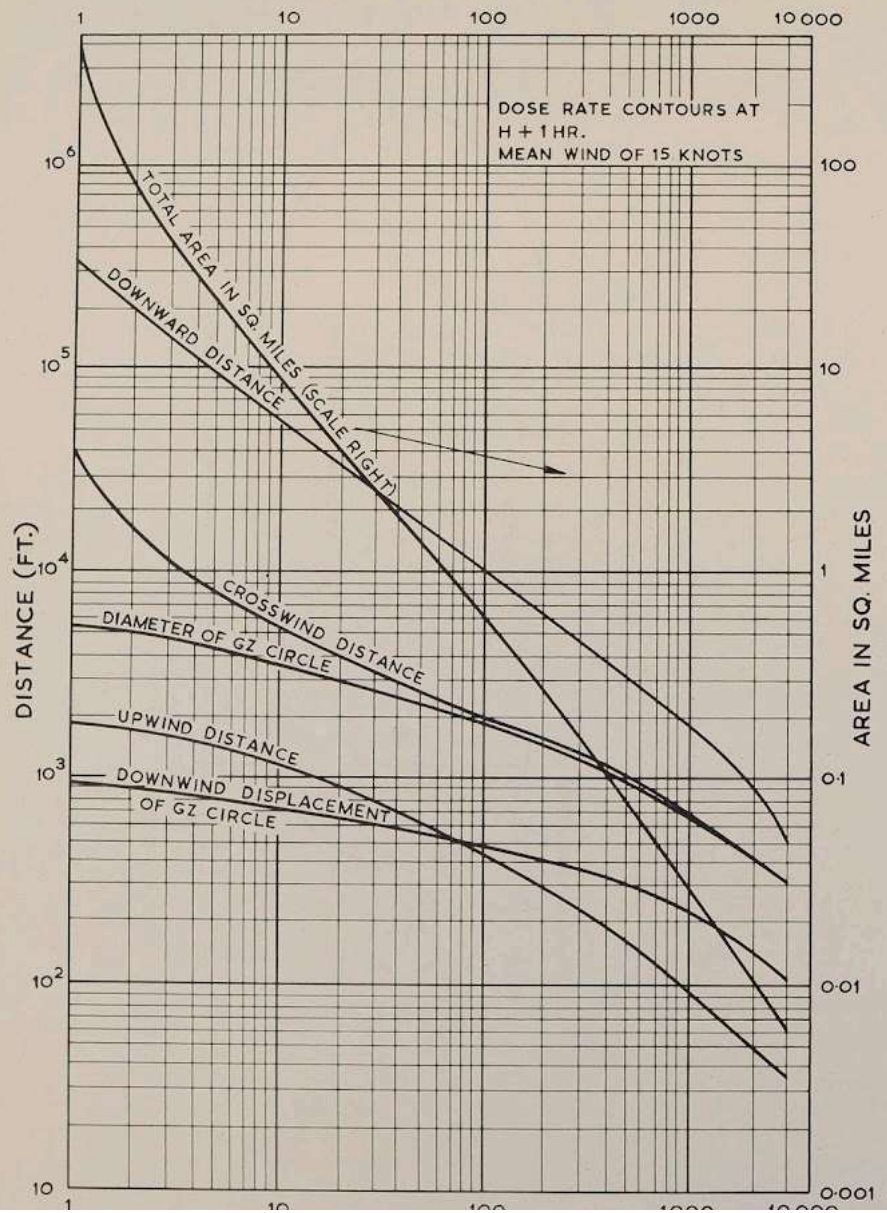
RADIATION DOSE RECEIVED FROM FLYING THROUGH AN ATOMIC CLOUD



PART VII
CHAPTER 7
SECTION 7.5
FIGURE 2

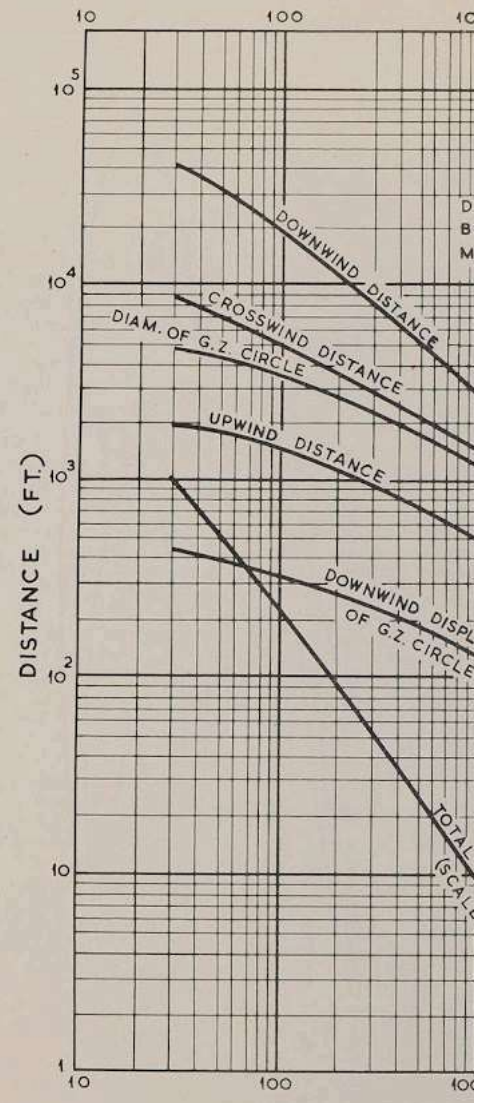
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D.N.W.
FEB. 1958

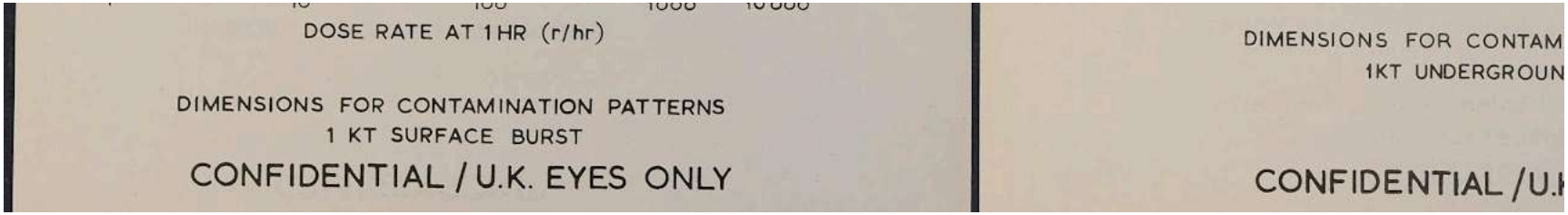


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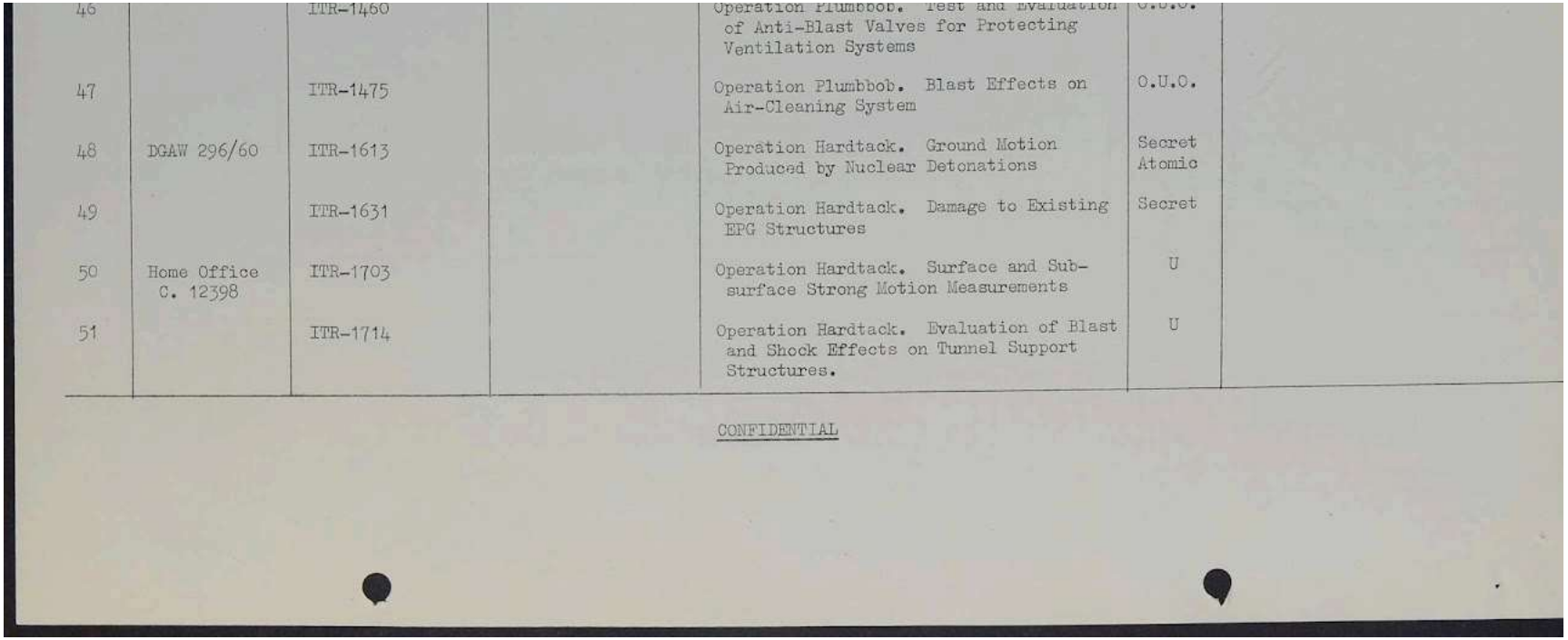


DOSE RATE AT 1H


DOSE RATE AT 1 HR (r/hr)
DIMENSIONS FOR CONTAMINATION PATTERNS
1 KT SURFACE BURST
CONFIDENTIAL / U.K. EYES ONLY
DIMENSIONS FOR CONTAM
1KT UNDERGROUN
CONFIDENTIAL /U.

C. Trials Reports

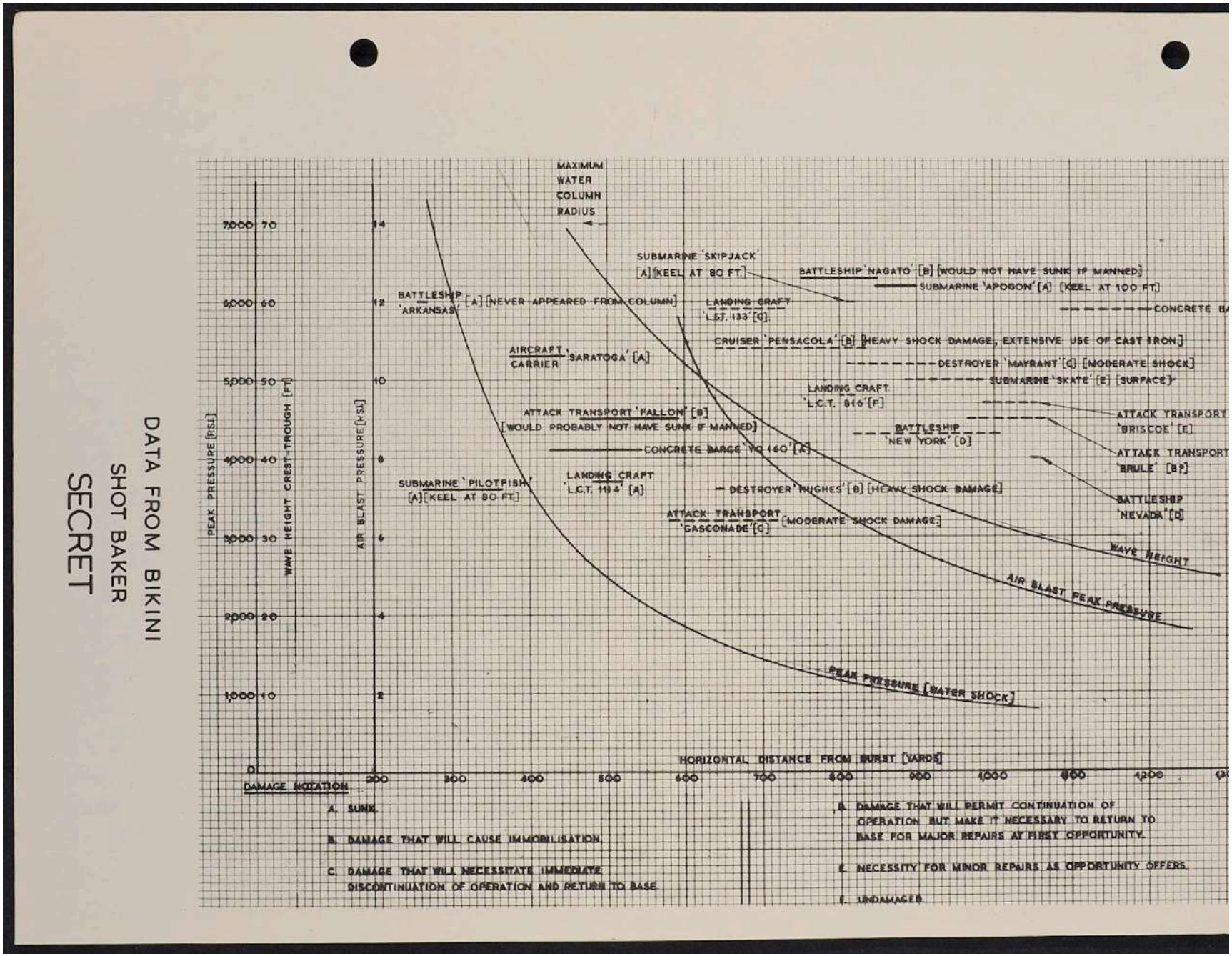
Ref. No.	U.K. Reference	U.S. Reference	Author	Title	Security Classn.	Remarks
31	AWRE Report T 47/57		A.J. Wood	The Effect of Earth Covers on the Resistance of Trench Shelter Roofs	C	
32	AWRE Report T 37/57		J.K. Wright	Operation Buffalos. Measurement of Ground Shock and Crater	Secret	
33	AWRE Report T 42/58		A.G. Hunt	Operation Antler. Measurement of Ground Shock	C	
34		WT - 727		Operation Upshot-Knothole. Air Blast Effects on Underground Structures	C	
35		WT - 1127		Operation Teapot. Air Blast Effects on Underground Structures	C	
36		WT - 1128		Operation Teapot. Evaluation of Earth Cover as Protection to Aboveground Structures	C	
37		ITR-1404		Operation Plumbbob. Ground Acceleration, Stress, and Strain at High Incident Overpressures	C	
38		ITR 1405		Operation Plumbbob. Ground Motion Studies at High Incident Overpressure	C	
39	DGAW 565/60	WT - 1420		Operation Plumbbob. Blast Loading and Response of Concrete-Arch Protective Structures	C	
40		WT-1424		Operation Plumbbob. Isolation of Structures from Ground Shock.		
41		WT-1425		Operation Plumbbob. Full-scale Field Tests of Dome and Arch Structures		
42		ITR-1447		Operation Plumbbob. The Internal Environment of Underground Structures subjected to Nuclear Blast. I - The occurrence of dust	O.U.O.	
43	DGAW 67/59	ITR-1448		Operation Plumbbob. Field Test of Reinforced Concrete Dome Shelters and Prototype Door	O.U.O.	
44		ITR-1449		Operation Plumbbob. Response of Dual-purpose Reinforced Concrete Mass Shelter	O.U.O.	
45		ITR-1459		Operation Plumbbob. Evaluation of Industrial Doors Subjected to Blast Loading	O.U.O.	



46		ITR-1460		Operation Plumbbob. Test and Evaluation of Anti-Blast Valves for Protecting Ventilation Systems	O.U.O.
47		ITR-1475		Operation Plumbbob. Blast Effects on Air-Cleaning System	O.U.O.
48	DGAW 296/60	ITR-1613		Operation Hardtack. Ground Motion Produced by Nuclear Detonations	Secret Atomic
49		ITR-1631		Operation Hardtack. Damage to Existing EPG Structures	Secret
50	Home Office C. 12398	ITR-1703		Operation Hardtack. Surface and Sub-surface Strong Motion Measurements	U
51		ITR-1714		Operation Hardtack. Evaluation of Blast and Shock Effects on Tunnel Support Structures.	U

CONFIDENTIAL

ABOVE: some pages from the originally SECRET ATOMIC 1,000 pages long UK Government *Damage by Nuclear Weapons* manual (now totally declassified without any deletions of data - unlike American manuals - in the UK National Archives, Kew), summarizing all of the effects data from 1950s British and American atmospheric nuclear weapons tests on military targets and also civil defense shelters tests, costs and safety. Below: some extracts from reports on Australian-British nuclear weapon test operations at Maralinga in 1956 and 1957, Buffalo and Antler, proved that even at 10 psi peak overpressure for the 15 kt Buffalo-1 shot, the dummy lying prone facing the blast was hardly moved due to the low cross-sectional area exposed to the blast winds, relative to standing dummies which were severely displaced and damaged. The value of trenches in protecting personnel against blast winds and radiation was also proved in tests (**gamma radiation shielding of trenches had been proved at an earlier nuclear test in Australian, Operation Hurricane** in 1952). (Antler **report linked here**; Buffalo **report linked here**.) All of this is still omitted from the American Glasstone and Dolan book "The Effects of Nuclear Weapons". The **1996 Northrop EM-1 (*see extracts below showing protection by modern buildings and also simple shelters very close to nuclear tests; note that Northrop's entire set of damage ranges as a function of yield for underground shelters, tunnels, silos are based on two contained deep underground nuclear tests of different yield scaled to surface burst using the assumption of 5% yield ground coupling relative to the underground shots; this 5% equivalence figure appears to be an exaggeration for compact modern warheads, e.g. the paper "Comparison of Surface and Sub-Surface Nuclear Bursts," from Steven Hatch, Sandia National Laboratories, to Jonathan Medalia, October 30, 2000, shows a 2% equivalence, e.g. Hatch shows that 1 megaton surface burst produces identical ranges to underground targets as a 20 kt burst at >20m depth of burst, whereas Northrop would require 50kt*) has not been openly published, despite such protection being used in Russia**! This proves **heavy bias against credible tactical nuclear deterrence of the invasions that trigger major wars that could escalate into nuclear war (Russia has 2000+ dedicated neutron bombs; we don't!) and against simple nuclear proof tested civil defence which makes such deterrence credible and of course is also**



of validity against conventional wars, severe weather, peacetime disasters, etc. The basic fact is that nuclear weapons can

deter/stop invasions unlike the conventional weapons that cause mass destruction, and nuclear collateral damage is eliminated easily for nuclear weapons by using them on military targets, since at collateral damage distances all the effects are sufficiently delayed in arrival (unlike the case for the smaller areas affected by conventional weapons). As for Hitler's stockpile of 12,000 tons of tabun nerve gas, whose use was deterred by proper defences (gas masks for all civilians, as well as biological agent anthrax and mustard gas retaliation capacity), it is possible to deter escalation within a world war with a crazy terrorist if people are protected by defence and deterrence:

J. R. Oppenheimer (opposing Teller), February 1951: "It is clear that they can be used only as adjuncts in a military campaign which has some other components, and whose purpose is a military victory. They are not primarily weapons of totality or terror, but weapons used to give combat forces help they would otherwise lack. They are an integral part of military operations. Only when the atomic bomb is recognized as useful insofar as it is an integral part of military operations, will it really be of much help in the fighting of a war, rather than in warning all mankind to avert it." (Quotation: Samuel Cohen, Shame, 2nd ed., 2005, page 99.)

'The Hungarian revolution of October and November 1956 demonstrated the difficulty faced even by a vastly superior army in attempting to dominate hostile territory. The [Soviet Union] Red Army finally had to concentrate twenty-two divisions in order to crush a practically unarmed population. ... With proper tactics, nuclear war need not be as destructive as it appears when we think of [World War II nuclear city bombing like Hiroshima]. The high casualty estimates for nuclear war are based on the assumption that the most suitable targets are those of conventional warfare: cities to interdict communications ... With cities no longer serving as key elements in the communications system of the military forces, the risks of initiating city bombing may outweigh the gains which can be achieved. ...

'The elimination of area targets will place an upper limit on the size of weapons it will be profitable to use. Since fall-out becomes a serious problem [i.e. fallout contaminated areas which are so large that thousands of people would need to evacuate or shelter indoors for up to two weeks] only in the range of explosive power of 500 kilotons and above, it could be proposed that no weapon larger than 500 kilotons will be employed unless the enemy uses it first. Concurrently, the United States could take advantage of a new development which significantly reduces fall-out by eliminating the last stage of the fission-fusion-fission process.'

- Dr Henry Kissinger, Nuclear Weapons and Foreign Policy, Harper, New York, 1957, pp. 180-3, 228-9.

(Quoted in 2006 on this blog **here**.)







DAILY EXPRESS

No. 15,509 THURSDAY MARCH 2 1950 CONTROLLING SHAREHOLDER LORD BEAVERBROOK Weather: Fair or fine

ATOM 1 'Man in the know' helped Russia on

ATOM 2 'The Fox' made no mistake in 7 years

TEA Price going up—supplies going down

ATTLE

FUCHS GAVE BOMB TO RU

Survived purges by MI5 and got promotion

CLEVEREST SPY EVER KNOWN

By CHAPMAN PINCHER

IN 90 minutes at the Old Bailey yesterday, a riddle was solved: How did Russia make the atomic bomb so quickly? Dr. Klaus Emil Julius Fuchs, confidant and leading member of Britain's atom team, who began a 14-year jail sentence last night, gave them the know-how.

Almost from the first exciting moments in 1942 when British scientists were proving an atomic bomb was feasible, Fuchs had been fully in the know.

After release from 18B internment he joined another ex-German, Berlin-born Professor Rudolf Peierls, at Birmingham University. The value of the knowledge he built up at this stage is shown by this official statement:—

"Professor Peierls, assisted by Dr. Fuchs and others, used the experimental data provided by Liverpool and Cambridge to calculate the critical size of the bomb. They examined the mechanics of the reaction, and calculated the amount of energy likely to be released in an atomic explosion, studying the conditions for increasing the amount."

THE KREMLIN'S GUIDE

The reports Fuchs helped to prepare—and may have passed on to Soviet agents—had abstruse titles like "Critical radius and time constant of a sphere embedded in a spherical scattering container."

To his scientific counterpart in Moscow such titles promised more detailed evidence of the shape and size of the explosive atom-bomb core.

For two years—1944 to 1946—Fuchs worked in America's Los Alamos atom station, where the bombs were designed and built.

There he picked up those secrets of bomb mechanics about which the Americans are most sensitive.

Attlee will take it and cling on

By GUY EDEN

AS M.P.s assembled at Westminster yesterday for the first time, Tories were calling this the Turn-The-Other-Cheek Government.

It became known that the Government intends to put up with almost any rebuff, so as to remain in office as long as possible.

At the same time the Tories will not try to bring down the Government for some months at least — unless they are deliberately provoked by some controversial issue.

The belief was held in the lobbies last night that the Government may hold office into next year.

Fuchs prepared this atom report in 1943

EFFECT OF A SCATTERING CONTAINER

ON THE CRITICAL RADIUS AND TIME CONSTANT.

K. Fuchs. **SECRET**

1. Introduction

We consider in the following the critical radius and the time constant of a chain reaction in a sphere surrounded by a spherical container. We assume essentially that the mean free path is the same in the sphere and the container. For some purposes

THIS is the sort of information Fuchs passed on . . . Title page of a Government report on research to discover the best shape and size for the explosive core of an atom bomb. Prepared by Dr. Klaus Fuchs in 1943 for the British atom project—then code-named Tube Alloys—it is no longer secret.

Consider now a very thin container and put

$$(8.3) \qquad f(r) = f_0(r) + f_1(r)\,\delta r_2 \qquad \delta r_2 = r_2 - r_1 \ll r_1$$

$$\beta = \beta_0 + \beta_1\,\delta r_2$$

Subtracting (8.2) from (8.1) and retaining only terms of first order in δr_2 one finds

$$f_1(r) = \tfrac{1}{4}\beta_0 \int_0^{r_1} K(r,r')f_1(r')\,dr' + \ldots + \tfrac{1}{2}\beta_0 \int_0^{r_1} K(r,r')\,f_0(r')\,dr' + \tfrac{1}{2}\beta_0\, p\, K(r,r_1)f_0(r_1)$$

Multiply (8.4) with f_0 and integrate over the sphere; using the

From the same Government report . . . showing the intricate mathematical equations and the symbols in which Fuchs dealt.

separation potential gained in producing the fra… tial lost in re-mixing. In any one unit the ga…

(1.6)

$$\sum \frac{{}^{b}\mu\,\delta_\mu^2}{2\left[o(1-o)\right]^2}$$

That lost by re-mixing is

$$\sum \frac{{}^{b}\mu(\delta_\mu - \mu\frac{do}{dn})^2}{2\left[o(1-o)\right]^2}$$

DEAR… TEA—A… CUT … RATI…

Express Staff

TEA prices ar… rise, perhap… a lb., a London … said yesterday.

He expects the … of a Government … argument going o… which may threa… ounce of the 2½oz.

Ceylon wants to … sends us from 130 … 100 million lb.—and …

With the subsid… increase would be … the housewife. … pays an average 3…

The subsidy saves … and costs the coun…

The Food Ministry … restoring free buyin… ing London's tea …

Milk sales too de…

People are drin… since it was de… January 15. Co… fallen from the th… to two and a half … An official of the … men's Association s… is too dear at 9d. …

No petro…

CANBERRA, Wed… stocks in Australia … 14 per cent. since t… ment took office. … McLeay says. Co… risen little since ra…

BRIDES KICK CL… AT AIRPORT

Express Staff Reporter: New York, Wed…

WOMEN screamed and kicked and men … pounded their fists on counters today … announced at Idlewild, New York's airport … Flight No. 100—for London—would be delaye…

Fifty-seven passengers were …

At a meeting of Socialist M.P.s yesterday before Parliament assembled Mr. Attlee and Mr. Herbert Morrison both stressed that absolute discipline is essential.

Since then he has been at Harwell, in Berkshire—the hub of British atom research. As head of the theoretical physics department the latest experimental results from many of the most closely guarded laboratories would be

Hence the difference is

$$\Sigma b_{\mu\mu}\left[\frac{d\sigma}{d\Omega_\mu} - \frac{1}{2}\left(\frac{d\sigma}{d\Omega}\right)^2\right]$$

waiting to board the plane. They had waited two days.

Men and women—some of them war brides—advanced on the clerks in the Pan-American Airways office.

Cannon in the

DAILY EXPRESS

CONTROLLING SHAREHOLDER
LORD BEAVERBROOK

No. 15,486 FRIDAY FEBRUARY 3 1950. Weather: Mainly fair One Penny

H BOMB Truman refuses a delay

SALE Man forced to buy back his own suit

FILM Fireworks thrown in cinema

BAN Ede stops political marches in London

'BUY OFF THE HELL BOMB'

U.S. atom boss urges world loan

'I PLEAD WITH YOU'

From VINCENT EVANS: Washington, Thursday

AMERICA should offer a 50,000 million dollar (£18,000 million) Marshall plan to the world, including Russia, if all other countries would agree to outlaw the hydrogen bomb, said Senator Brien McMahon, head of the Congress Atomic Committee, in the Senate tonight.

McMahon is one of President Truman's chief advisers on atomic affairs.

A few hours before his speech Truman told reporters that he refused to hold up development of the hydrogen bomb — which the Americans are calling the "hell bomb" — in favour of a plan for international control.

McMahon said the U.S. is spending 15,000 million dollars a year on armaments. He proposed that 10,000 million dollars of this should be set aside each year for five years and offered to the world on these two conditions:—

1 That all countries accept an effective programme for international control of atomic energy.

2 That all countries agree to devote two-thirds of their present arms budgets to constructive ends. This agreement would be enforced by inspection.

The world fund advanced by the U.S. would be administered by the United Nations.

Look at the sun

Speaking with great emotion McMahon told the Senate: "I plead with every Congressman to go to his bedroom window every morning.

"Look at the sun. Realise that what goes on inside the sun millions of miles away, threatens to be re-enacted on this earth—in Washington, in New York, Los Angeles and Chicago. It is most horrible and terrifying.

McMahon is one of the few men in the confidence of the top American scientists working on the hydrogen project.

He is a lawyer and father of a nine-year-old daughter.

"Consider what sustained fear of the hydrogen bomb does to the individual. It constricts his imagination, paralyses his initiative, even affects his personal morality. It is the most subtle of poisons.

"Consider the crushing burdens imposed on our private enterprise economy. Consider the restrictions on freedom brought about by the atom bomb — loyalty checks, counter-espionage and widening areas of secrecy.

I warn you

"Look into the future and multiply that a thousand times. If you are candid and realistic, you will find it is difficult indeed to see a dominant role for freedom against that background. To stay alive we will find ourselves more and more compelled to imitate our totalitarian rival.

"If we win the race to build this weapon, what good is it going to do us? It just means that we gain time—and possibly only a short time—before the Kremlin achieves success also."

McMahon raised his hand and waved it round the senators.



Germans offer us ham

Express Staff Reporter

TINNED ham is being offered to British importers—by Germany.

One of Germany's biggest pre-war export firms has written to its former London agents:—

"We would like to renew relations with foreign customers.

"We are also making all kinds of sausages, such as Italian and Hungarian sausages, bolognas, and eager to find out and we would like to send samples."

A principal of the London firm said: "We would like to give the German an order. But it is up to the Food Ministry whether import licences are granted or not."

£2,000,000 lost on apples

THE Food Ministry's quota buying of 25,000 tons of Italian apples this season has cost the British apple-grower nearly £2,000,000.

Mr. Giles Ecker, chairman of the National Farmers' Union fruit committee, said yesterday: "Just when our apples were reaching market in more Italian apples —tasteless and of poor quality."

Strachey warns butchers

£6,000 found under a floor

Express Staff Reporter

SACKS and pillow-cases filled with £6,000 in silver were found buried under a floor yesterday.

When Mr. Kenneth Bisson, a plumber, went to pull up floorboards in an under-the-stairs cupboard in Belmont-road, St. Helier, Jersey, to lay a pipe, he found a home-made trapdoor.

Under it was the hoard of half-crowns, florins, shillings, and sixpences dated 1922 to 1937.

It is believed the coins were hoarded by Mr. Bisson's uncle, Mr. Walter Bisson, who died a year ago. The island's Receiver-General will hold them until ownership is determined.

Mr. Kiss was first on murder list

Roger Norman Eves

Aged 15, junior clerk, . . . With Acting - Chief - Inspector Hayland, who arrested him.



TAX MAN SEIZES Mr. COOK'S SUITS

And he has to buy them back

Express Staff Reporter

MR. GOODMAN TALFOURD COOK sent two suits and a pair of trousers to a Reading firm of cleaners last December. He got them back yesterday by buying them off the income-tax collector—for £13 15s.

Mr. Cook went round to a branch of the Universal Steam Pressing (1929) Co. Ltd. and found the bailiffs in.

They were not only in charge of the shop but of Mr. Cook's single-breasted grey-blue serge suit, a plus-four suit and his best flannel boat.

There were ten or more suits belonging to other people, ten overcoats, and a dozen women's coats.

Because the firm owed the Treasury money under Schedule A —Property Tax—the whole lot were put up for auction yesterday.

PROTEST SENT

In a letter to Sir Stafford Cripps Mr. Cook protested that his clothes

Share dealers arrested

Reginald Miles, a member of the Stock Exchange, and Richard Palmer, a stock dealer, will be charged at the Guildhall today with conspiracy regarding deals in stocks and shares.

They were arrested in the City yesterday by members of the Fraud Squad, and detained overnight at Bishopsgate Police Station.

Mr. Miles was until recently a partner in a stock jobber's firm.

INGRID BERGMAN HAS A BABY BOY

Express Staff Reporter

ROME, Friday morning—Ingrid Bergman gave birth to a baby boy in a Rome clinic last night.

Both mother and son—fair-haired and blue-eyed — are doing well.

Miss Bergman and her husband, Dr Peter Lindstrom, a Hollywood brain surgeon, have been negotiating for a divorce. They were married in 1937 and have an 11-year-old daughter Pia—P for Peter, I for Ingrid.

The film star has announced that she will marry the Italian film director, Roberto Rossellini, when she is free. She is 35, he is 43.

Tonight Rossellini told a friend that Ingrid's son will be named Roberto.

Ingrid Bergman has filed application for a divorce in Mexico alleging cruelty, non-support, and incompatibility.

Rossellini was granted an annulment of his marriage by a civil court in Milan last month.

MET IN ITALY

He has a son, aged ten. He has announced his intention of marrying Ingrid.

They started work together in Italy last spring on the film "Stromboli," which was recently completed. Last Friday Rossellini said: "Ingrid is not going to make any more films, ever."

Dr. Lindstrom made a sudden flight to Italy last May "just to see and embrace Ingrid." He has not seen her since.

Ingrid and her baby have a private suite in the Villa Margherita, a fashionable nursing-home in a secluded part of the city. Rossellini booked three rooms.

By a coincidence the premiere of "Volcano," starring the Italian actress Anna Magnani, was held in Rome last night.

Anna Magnani, who was Rossellini's constant companion for three years, was to have made "Stromboli" with him. Then Ingrid came along—and got Anna's part.

Anna called in a Hollywood director to make "Volcano," which was rushed through as a counter-attraction to "Stromboli."

WHY TONIGHT?

Last night was to have been her triumph. The top flight of Rome's society was there to acclaim her film. So was Premier Gasperi, with the Diplomatic Corps. But Anna called off her personal appearance at the last minute.

She was one of the first to hear of Ingrid's baby—from a source in Rossellini's house.

In her flat overlooking the Tiber, she waved aside doctors who were pressing sleeping tablets on her, and cried: "Why, oh why, did it have to be tonight?"

Friends tried to persuade her to go to the cinema.

"What does my film mean compared with this?" she replied. "I just cannot face people. I refuse to go through with it."

But early this morning she sent out a statement for publication. It was: "Please convey my best wishes and congratulations."

"Leonard Mosley flew to Rome yesterday to review "Volcano." His story of the film and the night's drama is told on Page Four.

Not greasy—but

Cracker starts cinema fight

Express Staff Reporter

SMOKE bombs and fireworks were thrown and fights broke out in the New Gallery Cinema, Regent-street, last night as the anti-British film "Sword in the Desert" was ending.

A packed audience of 1,500 people was watching the last five minutes of the last reel when there were shouts in the stalls.

A firework went off. The lights went up. Then two smoke bombs were thrown from the circle.

Police rushed in and helped the cinema attendants split up and throw out the fighting groups.

Fumes from the smoke bombs spread through the cinema. As the demonstrators were marched out shouting the audience put handkerchiefs to their mouths to keep out the smoke.

Then the film restarted, and the noise of another smoke bomb bursting came from the circle stalls.

It was the first day of the film and the New Gallery management received a letter warning of trouble if it was put on.

An hour after the audience left, smoke was still pouring into Regent-street from the foyer of the cinema.

A man was taken to Savile-row Police Station and questioned.

The film, made in Hollywood and released by J. Arthur Rank company, General Film Distributors, is based on the Jewish-Arab fighting in Palestine.

British troops are shown treating Jews harshly and being killed in battles.

4.30 a.m. LATEST

BOY FUGITIVES JUMP 30 FT.

Two boys who escaped from approved school two days ago jumped 30ft. from window of condemned house in Glasgow when discovered during night. Both were taken to hospital. One was detained.

INGRID'S CLINIC CALLS POLICE

ROME, Friday morning—Clinic where Ingrid Bergman had baby called police headquarters for protection early today when crowd collected. Four car-loads of police drove up. Two policemen stayed there.

20 DAYS TO THE POLL

CENtral 8000

£23,000 a bandit

SINGAPORE, Thursday.—Forty-eight Communist guerrillas were killed in Malaya last month. This includes 22 in one action. With the anti-rebel war costing about £35,000 a day, the price of killing the 48 is £23,000 each.—Express News Service.

MR. STRACHEY, the Food Minister, spoke at St. Andrews last night of the butchers' appeal for an impartial inquiry into the extra 7d. in the £ levy on wholesale prices.

He said: "We are ready to make further routine investigations if the butchers wish it. But the Food Ministry cannot divest itself of the ultimate responsibility for a decision of this kind."

And they attack him

THE butchers this morning put out a document, "The Truth about Meat," condemning Mr. Strachey's State-buying policy.

"This has encouraged State selling (in the Argentine), forced up prices and compelled Britain to take inferior meat — the exportable surplus," says the document, issued by the Imported Meat Trade Association.

The butchers believe "a return to free enterprise would quickly improve quality and lower prices."

French send pork

PARIS, Thursday.—France is sending 710 tons of frozen pork to Britain.—Reuter.

"Let me warn you with every sign of solemnity that I can command," he said, "at this moment in history. Building the

PAGE TWO COL. FOUR

POCKET CARTOON

by OSBERT LANCASTER



"I hate gossiping about a brother officer, but they're all saying in the club that 'Tatters' Mountpleasant is months behind with his Union dues again."

Czechs jail man who fed Britons

PRAGUE, Thursday.—The Czech owner of a canteen which served British Embassy officials has been sent to a labour camp for two years. He was tried with 50 other restaurant owners. "All received the same sentence.—Reuter

New meat talks

BUENOS AIRES, Thursday.—The Commercial Minister to the British Embassy in Buenos Aires, Mr. E. J. Joint, has been recalled to London for talks on a new meat agreement with the Argentine. He leaves on Saturday.—Express News Service.

Boom day

NEW YORK, Thursday.—Wall-street had its best one-day gain since June 13 today—with stocks increasing by nearly 1,000 million dollars (£357,142,500).—R.U.P.

Ede bans London election parades

ALL political processions are banned in London for three months from today—the day the General Election campaign officially opens.

Police had received information that a series of parades were arranged by members of the Union Movement through the East End. The first was to be held tomorrow. And the Communists planned counter-demonstrations.

Sir Harold Scott, Commissioner of Police, had a telephone talk with Mr. Chuter Ede, the Home Secretary. He agreed that the ban should be put on—only four weeks after a previous three-month ban was lifted.

Police last night visited the committee rooms of Mr. Lester Hutchinson, who was expelled from the Socialist Party and is now standing as an Independent Socialist in West Wallsmatow against Mr. Attlee. They asked about a procession arranged by his supporters for tonight.

They took details of the route and left—but went back five minutes later and said the procession could not be held.

Mr. Hutchinson's agent said "We shall still ask our supporters to walk, in a manner within the letter of the law, carrying posters, slogans and torches, well-dispersed, and we hope the police will not interfere."

GUY EDEN writes: The King is expected to hold a Privy Council about noon today. He will formally accept the advice of the Council to dissolve Parliament, and write his signature in the top left-hand corner of his Proclamation.

It will then be taken to the House of Lords, where the Great Seal will be fixed—bringing the Proclamation into effect at once.

Lord Jowitt, the Lord Chancellor, as official custodian of the seal, will preside over the historic procedure in a small room—a kitchen size in one corner, an oven in another—in the House.

Officials will pour red plastic into a silver mould. Then, with ribbons, they will fix the seal, six inches across, to the parchment.

And from Parliament's own post office, writs will be sent out by express post ordering returning officers in each of the 625 constituencies to make arrangements for the election of a new M.P.

Godiva on the roof

TURIN, Thursday.—Police chased 26-year-old Anna Meiffi today as she climbed naked over a roof. She said her husband threatened to kill her. He said she was hysterical.—Reuter.

BUDAPEST, Thursday.—Two wealthy farmers were executed today for the murder of a village Communist official, Ernst Kiss. One farmer was alleged to have been sent across the border by Tito to organise wealthy Hungarians against the Communists. Kiss was first on a death list.



James Robert Watson

Aged 17, moulder's apprentice. Pictured on summer holiday, 1949

THESE youths were accused at Woolwich yesterday of attacking a woman in a double-decker train on Tuesday.

After evidence of arrest, Watson—of Gilbert-road, Belvedere, Kent—and Eves—of South-road, Erith—were remanded in custody. The charge: "Being concerned together, in a railway carriage, in robbing Mrs. Ethel Ann Miller, with violence, of a wallet containing £1."

It was said that the youths volunteered statements at Blackheath Police Station.

Mrs. Miller, 58-year-old company director, was reported last night to be "still seriously ill."

Children saved from jet

A Meteor jet plane yesterday bounced in flames across a parish where two children had been playing five minutes before.

It crashed 100 yards away—at Burton Agnes, near Bridlington, Yorks—killing the pilot and injuring two men as they worked.

In vain. Under Section 162 of the Income Tax Act, which incorporates Section 86 of the Tax Management Act 1880 (based on a legal decision of 1813 on window tax) Mr. Cook's suits and trousers were forfeit.

So the garments went up for public auction and Mr. Cook's clothes were knocked down to Mr. Cook for £13 15s.

Forty-year-old Mr. Cook, who is an accountant and secretary of the Reading Chamber of Commerce, said last night:—

"Here you have customers' goods sold without their knowledge, while the goods of people who owe the tax are not yet sold.

"The shop fittings still have to be auctioned by the Inland Revenue. That makes me mad.

WORTH £30

"The blue serge suit was given to me when I was in America in 1948. I should say it is worth about £30—it is practically new.

"The tweed plus-four suit is fairly old. I haven't a clue how much it cost—my wife chooses all my clothes and I just pay the bill.

"The trousers are an almost new pair of grey flannels. I think they were pretty expensive."

Said Mrs. Cook: "The plus-fours are pre-war and cost £20. the flannels £9 9s."

An inland Revenue official said: "It is in order to distrain on any goods on the premises in a case of Schedule A (Property Tax). And what else is there to distrain on in a cleaners shop but the clothes?

"Mr. Cook's only redress is against the company. He has none against the Inland Revenue."

Beaverbrook says 'Coming home'

KINGSTON, Jamaica, Thursday.—Lord Beaverbrook said in Kingston today: "My stay in Jamaica is nearly at an end. I shall be leaving for England shortly."—R.U.P.

PAGE ONE ENDPIECE

ALL FOR A PENNY

THREE girl students stretched a 450-yard piece of string along busy Park-street, Bristol, yesterday. One tied a penny to the string. Another ran up and down clearing it out of walkers' way. The third hauled the penny the length of the street. Why? Said 18-year-old Constance Cook: "Somebody said it was impossible. It is not."

Police probe 'Nazi racket'

STUTTGART, Thursday.—Police are investigating an allegation that Karl Stroehle, acting head of a Ministry prosecuting Nazis, tried to do a deal to help Dr. Schacht, Hitler's financier.

Schacht has faced five denazification trials. Am't Stroehle, who is said to have ordered his officials to "commit irregularities" in such cases, has resigned.

The alleged scandal is said to involve dozens of wealthy business men, a former judge and chief prosecutor.—Reuter.

Student quizzed on giant art theft

KIEL, Thursday.—A 25-year-old German student today gave himself up to the police who want to question him about the theft of 2,000 works of art. They include pictures and drawings by Rembrandt, Durer and Holbein.

Briton gets apology

FRANKFORT, Thursday.—The American Army in Germany tonight apologised to a British business man, Roy Hill, and a Norwegian colleague for arresting them as suspected bank robbers. They were held for 3½ hours.

QM loses day

CHERBOURG, Thursday.—An Atlantic storm has delayed the Queen Mary, and 950 passengers will be a day late when they reach Cherbourg tomorrow.

Don John on bail

BAYONNE, Thursday.—Don John da Silva Ramos, accused of murdering his 20-year-old wife Monique, was released on £1,300 bail tonight.



–see for yourself!

Most men need something on their hair, to look smart, and women want men to look both neat and natural. That's why men are using Nufix.

Nufix is the *light* hair cream for a man. With its pure vegetable oils and lanolin Nufix keeps your hair neat and tidy all day—and gives it that nice natural look. Try some and see!

Nufix



THE HAIR CREAM FOR MEN THAT WOMEN LIKE

DAILY EXPRESS

No. 15,486 FRIDAY FEBRUARY 3 1950 . CONTROLLING SHAREHOLDER LORD BEAVERBROOK Weather: Mainly fair

H BOMB Truman refuses a delay

SALE Man forced to buy back his own suit

FILM Fireworks thrown in cinema

BAN Ede sto marches

'BUY OFF THE HELL BOM

U.S. atom boss urges world loan

'I PLEAD WITH YOU'

From VINCENT EVANS: Washington, Thursday

AMERICA should offer a 50,000 million dollar (£18,000 million) Marshall plan to the world, including Russia, if all other countries would agree to outlaw the hydrogen bomb, said Senator Brien McMahon, head of the Congress Atomic Committee, in the Senate tonight.

McMahon is one of President Truman's chief advisers on atomic affairs.

A few hours before his speech Truman told reporters that he refused to hold up development of the hydrogen bomb — which the Americans are calling the "hell bomb" — in favour of a plan for international control.

McMahon said the U.S. is spending 15,000 million dollars a year on armaments. He proposed that 10,000 million dollars of this should be set aside each year for five years and offered to the world on these two conditions:—

1 That all countries accept an effective programme for international control of atomic energy;

2 That all countries agree to devote two-thirds of their present arms budgets to constructive ends. This agreement would be enforced by inspection.

The world fund advanced by the U.S. would be administered by the United Nations

Look at the sun

Speaking with great emotion McMahon told the Senate: "I plead with every Congressman to go to his

Germans offer us ham

Express Staff Reporter

ARREST: The boys accused of attack in the double-decker train



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offered to British importers—by Germany.

One of Germany's biggest pre-war export firms has written to its former London agents:—

bedroom window every morning.

"Look at the sun. Realise that what goes on inside the sun millions of miles away, threatens to be re-enacted on this earth—in Washington, in New York, Los Angeles and Chicago. It is most horrible and terrifying.

£6,000

Roger Norman Eves

Aged 15, junior clerk. . . With

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an effective programme for international control of atomic energy;

2 That all countries agree to devote two-thirds of their present arms budgets to constructive ends. This agreement would be enforced by inspection.

The world fund advanced by the U.S. would be administered by the United Nations.

Look at the sun

Speaking with great emotion McMahon told the Senate: "I plead with every Congressman to go to his bedroom window every morning.

"Look at the sun. Realise that what goes on inside the sun millions of miles away, threatens to be re-enacted on this earth—in Washington, in New York, Los Angeles and Chicago. It is most horrible and terrifying.

McMahon is one of the few men in the confidence of the top American scientists working on the hydrogen project

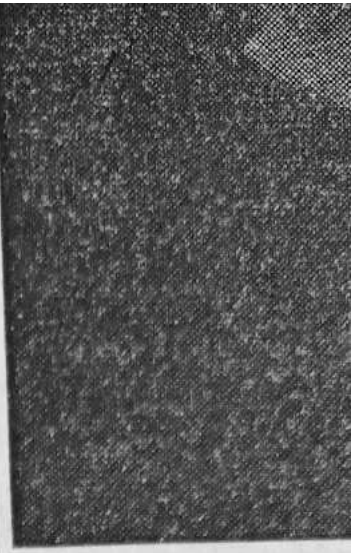
He is a lawyer and father of a nine-year-old daughter.

"Consider what sustained fear of the hydrogen bomb does to the individual. It constricts his imagination, paralyses his initiative, even affects his personal morality. It is the most subtle of poisons.

"Consider the crushing burdens imposed on our private enterprise economy. Consider the restrictions on freedom brought about by the atom bomb — loyalty checks, counter-espionage, and widening areas of secrecy

I warn you

"Look into the future and multiply that a thousand times. If you are candid and realistic, you

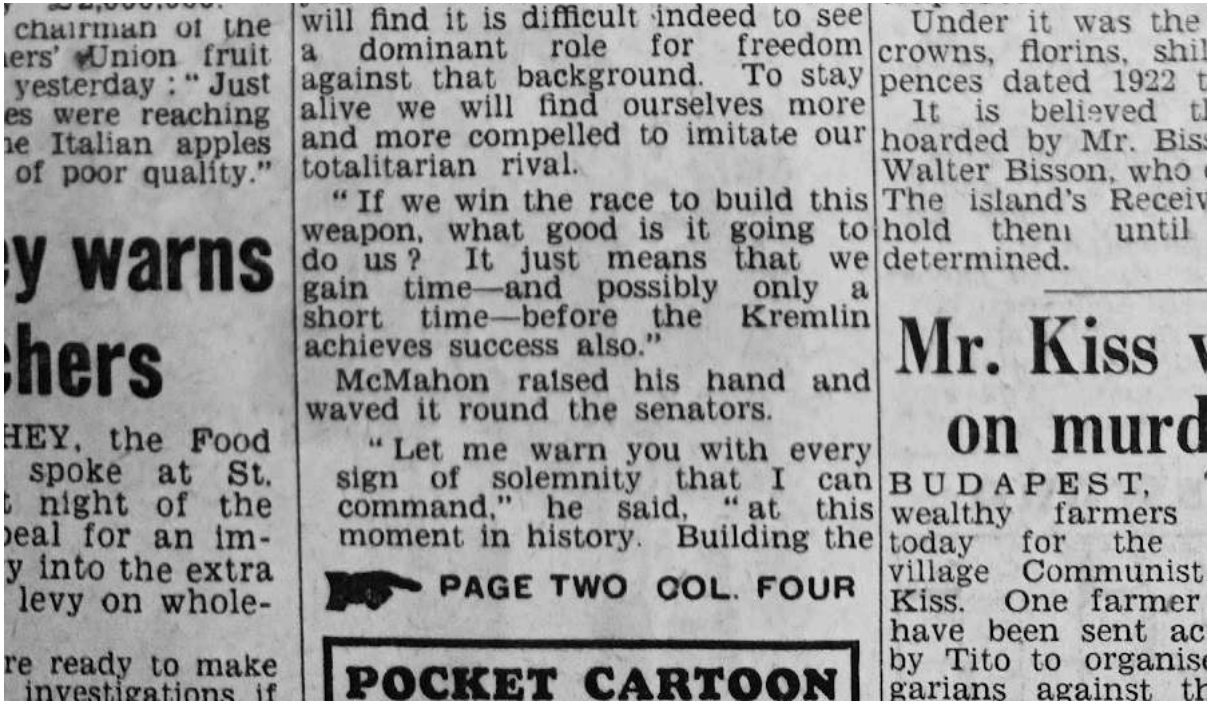


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Express Staff

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will find it is difficult indeed to see a dominant role for freedom against that background. To stay alive we will find ourselves more and more compelled to imitate our totalitarian rival.

" If we win the race to build this weapon, what good is it going to do us ? It just means that we gain time—and possibly only a short time—before the Kremlin achieves success also."

McMahon raised his hand and waved it round the senators.

" Let me warn you with every sign of solemnity that I can command," he said, " at this moment in history. Building the

PAGE TWO COL. FOUR

POCKET CARTOON

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Governments, the rest by a levy of 6s. a head on Africans in Buganda. —Express News Service.

jobs.

Union leaders meet at York n
Thursday to consider the next s

'BUY OFF HELL-BOMB

FROM PAGE ONE

hydrogen bomb does not promise us security—not positive security.

"It promises only the negative result of averting for a few months or perhaps a few years, a well-nigh certain catastrophe.

"This hydrogen bomb. What does it mean? It means we have this alternative—first, a cold war armaments race; or second, the U.S. can launch a crusade for world-wide atomic peace. Which way are you going to choose?

"Let us cast aside all old thinking. Let us tap at the roots of our imagination and ingenuity. Let us not regard any suggestion as too startling or unconventional. Let us be inspired and disciplined by our code of ethics and democratic, peace-loving decencies.

"If you accept my suggestion—10,000 million dollars for each of the next five years—we would have made the cheapest monetary bargain in our history

saved mankind from destruct
by fire. For how can it
possible for free institutions
flourish in a situation wh
military and civil defences n
be ceaselessly poised to meet
attack that might burn
50,000,000 Americans?

"And remember—that would
happen in the space of one even
It would happen in the space
few minutes. How can you
template that?"

'Challenge Soviet

He proposed that the U.S. sh
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"Our present concern with
hydrogen bomb furnishes a se

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"We would probably have

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third will be given us," he said

DAILY EXPRESS

CONTROLLING SHAREHOLDER
LORD BEAVERBROOK

THURSDAY FEBRUARY 16 1950

No. 15,497

Weather: Dull and windy

One Penny

ATOM 1 Bevin to Churchill: 'Stunt proposal'

ATOM 2 Attlee to Churchill: 'Leave it to UNO'

BREAK-UP Whistling Boomerang splits in air

INGRID Rossellini and Bergman denounced by Vatican

BEVIN CALLS IT A STUNT

'H-bomb is a job for UNO'

Empire Union means Peace

By LORD BEAVERBROOK

WHY is the Empire policy important? It is important because it represents the one and only way to peace and security.

Peace—a real peace—will never be maintained by force of arms alone. Only by friendship.

And the only way in which friendship between Russia and America can be obtained is if a strong and united British Empire acting as a third world Power bridges the gap between East and West.

★

So, too, only a united Empire can bring high wages and real security of employment to the workers of Britain.

The ourselves to foreign markets and forever more we face the fear of unemployment.

But develop the Empire, tap its undeveloped treasures, and the pay packet of every British working man will be increased. Ahead stretches the prospect of a secure and ever-increasing standard of life for every man, woman, and child.

This is the way to end for all time the threat of financial insecurity or dependence on the charity of others. For this is the certain way to ensure within the bounds of a United Empire great and guaranteed markets for the products of our labour.

★

But we seek not only to raise our own standard of life. The conception is grander than that—the development of the standards of living of all citizens of the Empire.

The advantages we seek to bestow on the inhabitants of Jamaica and on those who live in Nigeria are just as important to the Empire Lobby as Full Employment with high wages here at home.

Can our project succeed? It must.

The new Parliament and those responsible for government must carry out the long-deferred, greatly desired programme for Union Now throughout the British Empire.

Beaverbrook

The Empire Lobby

Ask your candidates to pledge themselves to the Programme for Empire Union Now.

LOWNDES OF CLAPHAM SPEAKS OUT

ATTLEE: IT'S RECKLESS

Express Political Correspondent

MR. ATTLEE and Mr. Bevin both reacted last night to Mr. Churchill's Edinburgh Declaration on the atom bomb.

Mr. Bevin labelled the Churchill call for Big Three talks on the highest level as "a stunt proposal."

He referred to it only obliquely in his broadcast, and in only one sentence. That took him more than two and a half hours to frame, and he did not decide before he talked on the long-distance phone with Mr. Attlee.

Mr. Attlee, speaking at Nottingham, ignored the Big Three part of the Churchill Declaration, and referred only to Mr. Churchill's remark that "it is very odd" Britain has no atom bomb.

Of that, Mr. Attlee said:—

"Mr. Churchill ought to know. He made the agreement with the United States. He knows perfectly well the agreement was that atomic energy should be developed in America and Canada.

"He knows perfectly well why it takes longer here. He knows perfectly well the long time it takes anywhere.

I took action

"That kind of thing ought not to be thrown recklessly by a man who is a statesman into a very difficult question, accompanied by what I can only describe as gross misrepresentation."

Earlier yesterday, in an interview at Lincoln on Mr. Churchill's suggestion for a conference, Mr. Attlee said:—

"I took action almost as soon as I became Prime Minister on this topic. I went across and saw the Americans and the Canadians on it.

"Thereafter we have been unceasingly endeavouring to bring the whole thing under the control of the United Nations.

"Whether there would be any use in making another approach is a matter for consideration. I do not rule out the suggestion which has been made by Mr. Churchill, but at the present moment it rests with the United Nations."

Mr. Bevin let up to his one-sentence comment by a recital of history. Thus:—

"We took the United Nations basis upon which to build the whole edifice of our policy.

'Vigorous policy'

"Therefore, as soon as we came into power, we commenced to discuss with the United States the control of atomic energy.

"Since then we have pursued a vigorous policy trying to get international control. But it is clear that if confidence is to be established between nations that have got the atomic energy there must be inspection and collaboration.

"Until now, every effort made by the United States and ourselves has failed.

"Russia is a closed book and at present her people are being more cut off than ever, but, if peace is her objective, as it is ours, inspection and control of atomic energy is not too great a price to pay.

"I think it is clear from what I have said that this is not a problem which can be solved by any stunt proposals.

POCKET CARTOON
by OSBERT LANCASTER



"I suppose you blasted radicals will try to explain this away by saying the fellow had had one tension-juice too many!"

Former directors summoned

Express Staff Reporter

SUMMONSES against Mr. Joseph Leslie Musgrave and Mr. Arthur Edward Patrick Hinds, once directors of the former Richard Crittall and Co., Ltd., and Mr. Kenneth Forbes Steven, a member of a firm of accountants, were issued by the Bow-street magistrate yesterday.

The summonses arise out of a prospectus in 1947. The present Richard Crittall and Co. is a reconstruction of the former company.

A representative of the Director of Public Prosecutions applied for the summonses. He was accompanied by Chief Superintendent Arthur Thorp and Superintendent George of Scotland Yard. The case will be opened at Bow-street on March 16.

'Churchill in world of Fuehrers'

MR. ARTHUR WOODBURN, Secretary of State for Scotland, told students at Edinburgh University yesterday:—

Mr. Churchill is a great modern statesman, and being so carries a great responsibility. Judging by last night's speech he still lives in a world of Fuehrers.

He seems to think personal differences between leaders of Governments the answer to the present tension in international affairs.

Students of history know that while individuals play a great part in international affairs, they cannot succeed in eliminating the fundamental differences existing between nations that are ideological, military, and economic.

To suggest that world affairs can be settled by three people around a table is fantastic. World affairs must be discussed in an atmosphere of reality.

I TREMBLE, SAYS SIR HARTLEY

SIR HARTLEY SHAWCROSS said at Goole last night:—

Every time Mr. Churchill makes a speech he starts off a fresh stunt.

The more I listen to and read Mr. Churchill's speeches, the more I tremble—and I mean this—for the future of the peace of the world if ever he should get back to the position he seeks.

IT DELIGHTS ME, SAYS LIBERAL

MR. CLEMENT DAVIES, Liberal leader in the last Parliament, said:—

I cordially endorse Mr. Churchill's proposal that a new and supreme effort should be made at the highest level to bridge a gulf between the Western world and Russia.

I am delighted to know that Mr. Churchill has come round to a view which has been so strongly advocated by Liberals during the last two years.

READY FOR TALKS IF—SAYS U.S.

WASHINGTON, Wednesday.—The U.S. is ready to discuss outstanding issues with Russia, but the initiative must come from Russia, said Mr. Dean Rusk, a deputy Under-Secretary of State.

"The door to negotiations is always open on our side," Mr. Rusk said. — Express News Service.

A NEW MISSION TO MOSCOW?

NEW YORK, Wednesday.—Raymond Daniell writes in the New York Times:—

Today it has been suggested that Lord Beaverbrook might be Mr.

Mr. Jacob Goldsilvershave is robbed



WHERE IT HAPPENED
Mr. Goldsilvershave is in this Express reconstruction.

PILLION BANDITS RAID JEWELLER

Express Staff Reporter

A PILLION bandit jumped on Mr. Jacob Goldsilvershave, a 66-year-old jeweller and watchmaker, at the front door of his home in Greatorex-street, Stepney, E., last night.

He got away with a battered attaché case containing Mr. Goldsilvershave's entire stock—£200 worth.

"I had closed my shop in Fieldgate-street," the watchmaker said. "I walked through the dark passage leading to my home.

"As I put my foot on our doorstep a short, thick-set man in a town coat came up behind me, jumped on me, punched me, and snatched my bag.

"I saw him run to a motor-cycle standing across the street with its engine running. He leaped on the pillion seat and they roared off down Whitechapel-road towards Mile End."

In Mr. Goldsilvershave's attaché case, which was held together with black thread and string, were 42 watches and watch movements, gold cuff-links and a pearl necklace.

'NOT INSURED'

"The terrible thing," he said, "is that I am not insured. My little shop was bombed and my insurance companies will not take me on."

Kent and London police were hunting last night for a young man with slicked-back hair who, with a blonde girl, staged a smash-and-grab raid on a wine store in Market-parade, Sidcup.

The couple drove up in the store in a small green saloon. The man got out and heaved a heavy sack through the plate-glass door; the woman stayed at the wheel.

Inside, the man grabbed cash from the till and 12 bottles of gin from under the counter.

Within two minutes the raid was over and the car had disappeared.

The girl is said to be between 20 and 25. She was wearing a light raincoat and fur-lined boots.

VATICAN HITS AT INGRID

Rossellini's divorce is condemned

Express Staff Reporter: Rome, Wednesday

MONSIGNOR DINO STAFFA, a judge of the Holy Rota—the Vatican tribunal—tonight issued a public condemnation of what he calls "the Rossellini-Bergman scandal."

In an interview with Osservatore Romano, official newspaper of the Vatican, he says: "Even if they marry again, their situation is that of two people publicly committing adultery.

"The fame they enjoy and the publicity given to their case only increases the scandal of their lives and their responsibility before God."

Monsignor Staffa claims that, by agreeing to accept as valid in Italy the divorce secured by film chief Roberto Rossellini in Austria, the Turin Court of Appeal violated the concordat between Italy and the Holy See.

'NO COMMENT'

The concordat stipulates that annulment of marriages celebrated by the Roman Catholic Church shall be reserved in Italy exclusively to ecclesiastical tribunals.

Rossellini refused to comment tonight.

He is a Roman Catholic and he announced recently that he would seek an annulment of his first marriage by a Vatican tribunal in order that he may marry Ingrid Bergman in church. Their two-week-old baby will also be brought up as a Roman Catholic, he said.

C. V. Thompson cables from New York: More police than people queued outside the Broadway cinema where "Stromboli," the film Ingrid Bergman made with Roberto Rossellini, opened yesterday.

The police were there to protect fans from the ban-Bergman brigade who had threatened to picket the cinema.

But there were no pickets and despite the lurid posters blazoned all over America, few fans.

QUEUE IN SNOW

The film was opened on 200 other U.S. cinemas yesterday. But in New York there is no ban-Bergman resolution, the theatre council asked all cinemas to send back prints of the film.

It was snowing heavily there, but 200 people queued before the doors opened. About 1,000 bought tickets by the time the picture started.

Mr. John Vernon, spokesman for Ingrid Bergman's ex-husband, Dr. Peter Lindstrom, has been missing since Sunday.

Mr. Vernon, who is 41, was driving a car owned by Miss Bergman when he left his home in California to keep an appointment.

Cafe offers 3d. meals

BERLIN, Wednesday.—A cut-price restaurant where Germans can eat a good meal for threepence, opened today.

The 3d. meal is soused herring, smoked salmon meat salad, and unlimited bread rolls.

The restaurant—privately owned—offers Russian egg dishes with sardines and smoked salmon at 4d., and pure pork sausages with potato salad at 2s 1d.—Reuter.

Four men and girl on gun charge

Four young men, arrested after a police chase in the Strand on Tuesday night, were charged last night with robbing George Broadbent, at Bagnigge-wells-road police court, Lambeth, while armed with a revolver.

Three of the men were also charged, along with a 19-year-old girl arrested at the same time with being in possession of a revolver with felonious intent.

All five will appear in court at Lambeth today.

Robins picked as captain

Middlesex Cricket Club announced last night that R. W. V. Robins will captain the Middlesex side next season. He has been captain twice before.

Robins said he hopes to play in about half Middlesex's 26 county matches. When he cannot play a sub-committee, of which he is a member, will choose a deputy.

He does not object to a professional captain. "Either Compton or W. J. Edrich (a professional turned amateur) may take my place," he said.

Freddie goes out

Freddie Mills announced last night: "I have finally decided to retire from the ring."

Island man cut off a fortnight

Mr. R. A. Keith-Mason was rescued by a boatman last night after being stranded alone for 14 days on the 188-acre Channel island of Brecqhou. He is the owner, taken and his only provisions were bread, of potatoes and cold water.

He was discovered almost exhausted, in a cottage.

Jet smashes on sound barrier

By BASIL CARDEW

THE Whistling Boomerang—an experimental tailless jet plane—which disintegrated over Brickhill, Bucks, yesterday, is believed to have crashed against the barrier of sound.

The 29-year-old pilot, Squadron-Leader John Muller

4 a.m. LATEST HAIL INJURES PLANE PILOT

PARIS, Wednesday.—Injured [illegible] of four-engined Egyptian airliner made forced landing [illegible] at Rendsburg today after [illegible] smashed cabin windows. [illegible] optimists set his fare, [illegible]

CHANNEL SOS

[illegible] Wednesday.— Russian [illegible] freighter Rathlone was [illegible] Dunkirk tonight after [illegible] SOS.

7 DAYS TO THE POLL

CENtral 8000

Rowland, D.S.O., D.F.C., was thrown out and found dead in a [illegible]

A similar accident in a Whistling Boomerang killed Geoffrey de Havilland, the test pilot, in September 1946. Now there is only one plane of the kind left—a shower [illegible]

But the machine which crashed yesterday, it was stated by Hawker-Siddeley-Leader Derby in September 1948, got through the barrier of sound.

This was the only time the feat has been performed in this country.

'The barrier'

Technical experts [illegible] Tuesday, the moment when [illegible] developed on the plane neared the speed of sound were two-fold.

They heard a "surface" because they are released, plus a plane passes the speed of sound—about [illegible] mph.

There was no explosion, however, the "barrier" of this de Havilland DH 108 and the single Gloster [illegible] got engine were found intact.

Squadron-Leader Rowland was a test flight from the Royal Aircraft Establishment, Farnborough.

The Whistling Boomerang was built three years ago and used in research for the 50-seater Comet jet airliner. It has wings set back at an angle of 42 degrees.

When de Havilland's Comet prototype [illegible] last night, the Boomerang was handed over to civil aviation experts, who studied it during the last few months.

Squadron-Leader Muller Rowland was adjudged by the Ministry of Supply during the war, in which his two brothers were killed, he flew in India. He leaves a mother who lives at Woking.

SPEARS OUT

MR. ROY LOWNDES, 38-year-old New Zealander who is Tory candidate for Clapham, told his supporters last night :—

"I welcome the formation of the Empire Lobby. I feel it can be the economic as well as the emotional salvation of our people. And I am sure it will be welcomed in the Dominions."

Referring to O.E.E.C.—Organisation for European Economic Co-operation—Mr. Lowndes said : "To match that, the first thing we must do is to establish what I like to call O.B.E.C.—Organisation for British Empire Co-operation."

He said the Socialists had done the greatest disservice to Britain and the world by whittling away Imperial Preference.

"The Americans are our best friends outside the British world," said Mr. Lowndes.

"But we must say to them plainly that the terms of trade between countries of the British Empire are our concern and our concern alone."

£6 A WEEK MINIMUM? YES, YES—NO, NO

AT hustings all over the country last night the £6-a-week minimum pay packet project was backed—or condemned.

ALDERMAN WILLIAM HANCOCK, Tory candidate for Stoke-on-Trent, said at Hanley : "There is a minimum level at which all people must be sustained. Under present conditions I think we should start at £6 a week as that minimum figure.

"In future it would have to be in accordance with the Government's ability to maintain the value of the £."

"I believe a Conservative Government could maintain this £6 standard, under which no worker should be allowed to fall. It will be our first consideration to keep that standard."

FOR SOLDIERS ?

MR. JOHN MAUDE, K.C., Tory candidate for Exeter was asked if the £6-a-week minimum pay advocated by Lord Beaverbrook would apply to the serving man.

He replied, "I do not know. I have not been in touch with Lord Beaverbrook for many years.

"I now take off my hat to Lord Beaverbrook, and I do not intend to be frivolous about him, although he is steered at by the Socialist Party for pegging away (applause) at the Empire. I believe it is going to pay dividends."

Mr. Maude said a basic living standard for everybody was desirable. But he suggested that the £6-a-week minimum would not work in a country with universal suffrage because people would not remain content, and envy, hatred and malice might be engendered.

MR. KEITH QUAS-COHEN, Tory candidate for Chesham, said at Manchester : "Certainly let us have a £6 minimum wage.

"But let us note that British trade unionism, with its peculiar taste for Socialism, has added two million administrators to the national load who do not produce anything, but are supported from

PAGE TWO, COL. FOUR

'Bus fares going up' row

BUS operators, meeting in London, were told by Mr. Peter Yorke, their public relations chief, last night :—

"Fares in the London area are to be increased after October 1 to help offset losses on British Railways.

"Further, if bus nationalisation is allowed to go through, fares will be raised throughout the country.

"This is the declared policy of the British Transport Commission."

A TRANSPORT COMMISSION spokesman said : "We deny that Mr. Yorke's scheme for London which will be submitted to the Transport Tribunal as soon as it is ready, contemplates a general increase in fares to offset the deficit on British Railways.

"The main purpose will be to iron out anomalies.

"At no time have the commission made any declarations to the effect that they intend to raise bus fares throughout the country, and they are not in any position to do so."

We'll be ready

Mr. Bevin added : "We shall continue to build up security wherever we can, expand trade, give assistance where possible and if Russia shows the slightest change of attitude and indicates her readiness to settle three relationships and give the world complete peace, then we shall be ready to enter into discussions with the object of abolishing the possibility of war and enabling all nations to co-operate with each other."

Questioned last night at Dunfermline, on a Scottish election tour, Sir Stafford Cripps said :

"I agree with Mr. Bevin. This is a matter which it would not be advisable to deal with by small politics, especially at election time.

"These problems are being dealt with by serious consideration by all parties concerned, so to whatever we may arrive at some agreement by which these terrible weapons can be banned."

The Press was first informed that advance copies of Mr. Bevin's broadcast would be available "after 8.30 p.m. Then, at 8.30, the Socialist Party put off issuing the speech "until further notice."

A third notice said it would be available "after 8 o'clock." It was issued at 8.45, half an hour before Mr. Bevin went on the air.

The amount of interest aroused by Mr. Churchill's Declaration is understood to have surprised Socialist organisers. Their first reaction was to ignore it, but too many voters were calling for an indication of the Socialist attitude.

In again

HELSINKI, Wednesday.—Seventy-eight-year-old Juho Paasikivi, Liberal-Conservative, was re-elected President of Finland today.

WORLD COULD END IN A MINUTE

OTTAWA, Wednesday. — Dr. Allan Maun, atom scientist at Ottawa's Carleton College, said today :—

Explosion of the first hydrogen bomb might cause the whole world to disintegrate.

Given the right conditions, the explosion could turn us all into little suns, probably in less than 60 seconds. It would all be over so quickly that we would not know what hit us.—U.P.

Front of shop blown 20ft.

An explosion in the basement of a woodworking shop in Charles-square, Hoxton, N., blew the front on to a bomb site 20 feet away and smashed windows in seven houses last night.

A nine-inch brick wall at the rear was left bulging. Machinery weighing more than two tons was moved three and four feet. Unfinished cabinets and turned pieces of wood were blown into the street.

Ex-Nazi cheered after acquittal

DUSSELDORF, Wednesday.—Hundreds of nationalists cheered outside a German court today when Wolfgang Hedler, Right-wing deputy and ex-Nazi, was acquitted of making a Hitler-like and anti-Semitic speech.

Then thousands of German trade unionists were called to Kiel for a protest demonstration against the acquittal tomorrow.—Express News Service.

Date for Leopold

BRUSSELS, Wednesday. — The ministers to decide if King Leopold returns to the throne will be held on March 11.—A.P.

SERETSE : I STICK TO MY RIGHTS

SERETSE KHAMA, chief-designate of the Bechuanaland Bamangwato tribe, will in no circumstances renounce his right of succession.

This was said last night by his only fellow-tribesman in Britain, Philip Sechele, a law student.

Sechele has discussed with Seretse the dispute over his status caused by his marriage to Ruth Williams, former London typist.

"Seretse feels he has his people behind him," said Sechele. "They are happy about him and Ruth, and Ruth is happy too.

"He is not likely to accept any alternative, because his people are not likely to accept it.

"They bitterly resent the South African Government's interference in their affairs."

Sechele said that Seretse has framed a progressive social and economic reform programme for his people, who are pro-British.

At the Colonial Office's request, Seretse yesterday moved from the West End to a North London address which is being kept secret.

Shah sends an invitation to Yvonne



PULSE-QUICKENER Yvonne De Carlo, Where She Danced "; the Carlo—Hollywood's most photographed " in colour beauty—has left Rome, it is reported, for Teheran, on the invitation of the Shah of Persia. He met her in Italy a few weeks ago.

6ft. gunman runs from a girl

A 6ft. gunman walked into Farnham Royal village post office, Bucks, yesterday, thrust his gun under the grille and demanded money. Behind the counter 17-year-old Joyce Freeman took no notice. She pressed the alarm bell. The gunman ran away.

Fairbanks helps

VIENNA, Wednesday. — Douglas Fairbanks today picked up a British Army sapper, injured while ski-ing, and took him to an ambulance on his sledge.—Reuter.

PAGE ONE ENDPIECE

BASIC BOLONEY

A LETTER about Festival of Britain celebrations, sent by the Ministry of Health, came before Maupham Parish Council in Kent yesterday. And they could not understand it.

Said the clerk and schoolmaster, Mr. F. Strand : "Every sentence contradicts the previous one."

Said the vicar, the Rev. V. Hornsby : "It's basic boloney."



Did you MACLEAN your teeth today?



Of course I did!

MACLEANS
Peroxide Tooth Paste
makes teeth WHITE

16 Feb 1950 p4 Daily Express on H-bomb decision by Truman

CINEMA THEATRES

ACADEMY. Rossellini's The Miracle (A Ldn). Anna Magnani. Anne De La Nuit (A). J. L. Barrault. Prog. 12.0 2.46, 5.32, 8.18

ASTORIA. Leo Genn. No Place for Jennifer (A). Showing 2.35, 5.45, 8.55. North West Stampede (cine) (U). Showing 1.20, 4.30, 7.40

CAMEO-POLYTECHNIC. That Others May Live (A) 2.40, 5.55, 9.0. "See this Magnificent production." Edge of the World.

CARLTON. "Kiss the Boys Goodbye" (U) and "The Affairs of Susan" (A). Cont. 10.20.

CURZON. (Gro. 3737.) Open 11.40. Bicycle Thieves (U) 12.0, 3.10, 6.18, 9.25. Marx Bros. A Night at the Opera (U) 1.30, 4.45, 7.50.

DOMINION. Leonora Young. Come to the Stable (U). 2.50, 5.45, 8.55. Mark Stevens. Sand (Tech.) (U) 1.10, 4.20, 7.30.

EMPIRE. Cont. 10 a.m. (doors 8.45) to 11.30. Spencer Tracy, Katharine Hepburn, Adam's Rib (A). 10.10, 1.0, 3.55, 6.50, 9.45, & New Stage Show, "Cheers." 12.0, 2.50, 5.45, 8.40

GAUMONT, Haymarket. (Whi. 6688.) Gregory Peck in Twelve O'Clock High (U). Progs Commence 12.45, 3.10, 5.40 and 8.10

LEICESTER SQUARE TH. (Whi. 8252.) Ann Todd, Norman Wooland, Ivan Desny. Maddalena (A). Showing 1.10, 3.35, 6.05, 8.35.

LONDON PAVILION. Cont. from 10 a.m. Donald O'Connor in "Francis" (U). Also Robert Cummings in "Free For All" (U).

MARBLE ARCH PAVILION. (May. 5113.) Gregory Peck in Twelve O'Clock High (U). Progs commence 12.45, 3.5, 5.35 and 8.5.

METROPOLE. (Vic. 4673.) The Blue Lamp (A). 12.15, 3.10, 6.10, 9.05. White Cradle Inn (A) 1.35, 4.35, 7.35. Doors 12.0

NEW GALLERY. Joseph Cotten, Valli, Orson Welles, Trevor Howard. The Third Man (A). News, &c. Showing at 1.40, 4.5, 6.25, 8.45.

NEW VICTORIA. Come to the Stable (U). Sand (Tech.) (U). Ginger Nutt's Beefeater (U) (Tech.). Progs.: 12.35, 4.5, 7.20.

ODEON, Leicester-square. (Whi. 6111.) Jack Warner, Jimmy Hanley, Dirk Bogarde. The Blue Lamp (A). Show at 1.30, 4.0, 6.30, 9.5.

ODEON, Marble Arch. Pad. 8011. Trevor Howard, Anouk in "Golden Salamander" (U). Progs 1.5, 3.25, 5.45, 8.5.

ODEON, Tott. Ct.-rd. The Blue Lamp (A). 12.35, 2.55, 5, 8.05. White Cradle Inn (A). 1.30, 4.25, 7.25. Last Comp. Prog. 7.25.

PLAZA. Copper Canyon (U) (Technicolor). Progs. comm. 10.35, 1.05, 3.25, 5.44, 8.03.

RIALTO. Maurice Chevalier in "Le Roi" (A). Progs at 12.35, 2.5, 5.30, 8 p.m.

RITZ. Robert Donat, Greer Garson, "Goodbye, Mr. Chips" (U). 11.5, 1.30, 4.0, 6.35, 9.5.

STUDIO ONE. At 12.45, 3.40, 6.25, 9.35. M. Deniau. "The Glass Mountain" (A) & "Les Amis Sont Faits" (A) (Fr.) At 2.10, 5.5, 8.0.

TIVOLI. Leo Genn. No Place for Jennifer (A) Showing 2, 5, 9. North West Stampede (U) (cine.). Showing 1.30, 4.30, 7.30.

WARNER. Ger. 3422. Dennis Morgan, Doris Day, Jack Carson. "It's a Great Feeling" (U) Tech. Daily 10.50, 1.35, 4.0, 6.30, 9.05

DAILY EXPRESS

More than 4,000,000 sale every day

Opinion

He says 'stunt'

THE Atomic Committee of the United Nations—that is Mr. Bevin's answer to those who hope and seek for some way out of the terrible impasse into which the world is being led by the failure of statesmen and the success of scientists.

Any other attempt to deal with these appalling issues is, says Mr. Bevin, a "stunt."

But Mr. Bevin's remedy will satisfy nobody and certainly will bring no fears to an end.

Can you trust it?

SOME new initiative, some new upsurging of constructive good will is called for. Mr. Bevin does not meet that need by talking about the United Nations.

The United Nations is

'IF THE W

Election Not

by TREVOR

No 'lifts neighbo

A "DIRTY" day next week could votes to the Soci one Socialist M.P.s told he fixed the date: "Don at Westminster if it's Polling Day."

The unhappy ones East Anglia and the Ea

Socialists bank more t Nature on Polling Day. alone sunshine, means than the advantage they equality in the matter of

The meteorologists were prefer *not* to forecast wha like on February 23. They forecast which would be to

Tories are more worr restrictions; they find them



THEATRES

ADELPHI. Tem. 7611. Evgs. 7.30. Tues. & Sat. 2.30. JACK BUCHANAN. Castle in the Air. Lucie Mannheim. Cyril BRUNE.

ALDWYCH. Tem. 4601. 7.15. W. & S., 2.30. Vivien Leigh in "A Streetcar Named Desire," by Tennessee Williams with Bonar Colleano.

AMBASSADORS. Tem. 1171. 7.30. Tues., 2.30. Sir Lionel & Lilian Brough present Dear Evelyn. by Miss Coward. Lawrence Grossmith, Barbara Baddeley.

APOLLO. Ger. 2663. Evs. 7.0. Th., Sat., 2.30. Emlyn Williams, Lewis Casson, Marie Lohr, Ian Hunter, Linda Rogers in Treasure Hunt.

CASINO. Ger. 4317. Ev. 7.M. W., Th., S., 2.30. Lesley Storm's Black Chiffon. Yvonne Arnaud, Ernest Clark. Little Miss Market. Ba. now.

COLISEUM. (Tem. 3161.) 7.0. Wed., Sat., 2.30. Charles Cochran presents Lilian Braithwaite in Annie Get Your Gun. Bx. Plan now. Last 3 months.

COMEDY. Barry Kendall in On Monday Next. Ger. 3568. Evs. 7.30. Wed., Sat. 5 & 8.30.

COVENT GARDEN. OPERA (Last 3 weeks). Tuesday (last part of Rosenkavalier. Thurs. (last part of Peter Grimes.

COVENT GARDEN. SADLER'S WELLS BALLET. Ev. 7. Mat. Sats., 2.30. Sat., Sleeping Beauty. Mon. (last), Don Quixote. Time and full programme available Box Office now open. Tem. 1661.

CRITERION. (Whi. 7244.) Evgs., 6.30. Mats., Tues. Sat. 2.30. Yvonne Arnaud, Charles Victor in Traveller's Joy, by Arthur Macrae.

DRURY LANE. (Tem. 8108.) Evgs., 7.0 (ex.

simply the old League of Nations under a new name.'

It was the League that brought us to disaster last time. We might not have drifted into war in 1939 had it not been for foolish dependence on the League and the empty hopes that it aroused in men's minds.

If effective diplomatic action is to be denied on account of a specious reliance on this new League, our dangers will assuredly grow.

New men wanted

car used for taking voters t
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Only one car is permitte
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for every 2,500 in towns.

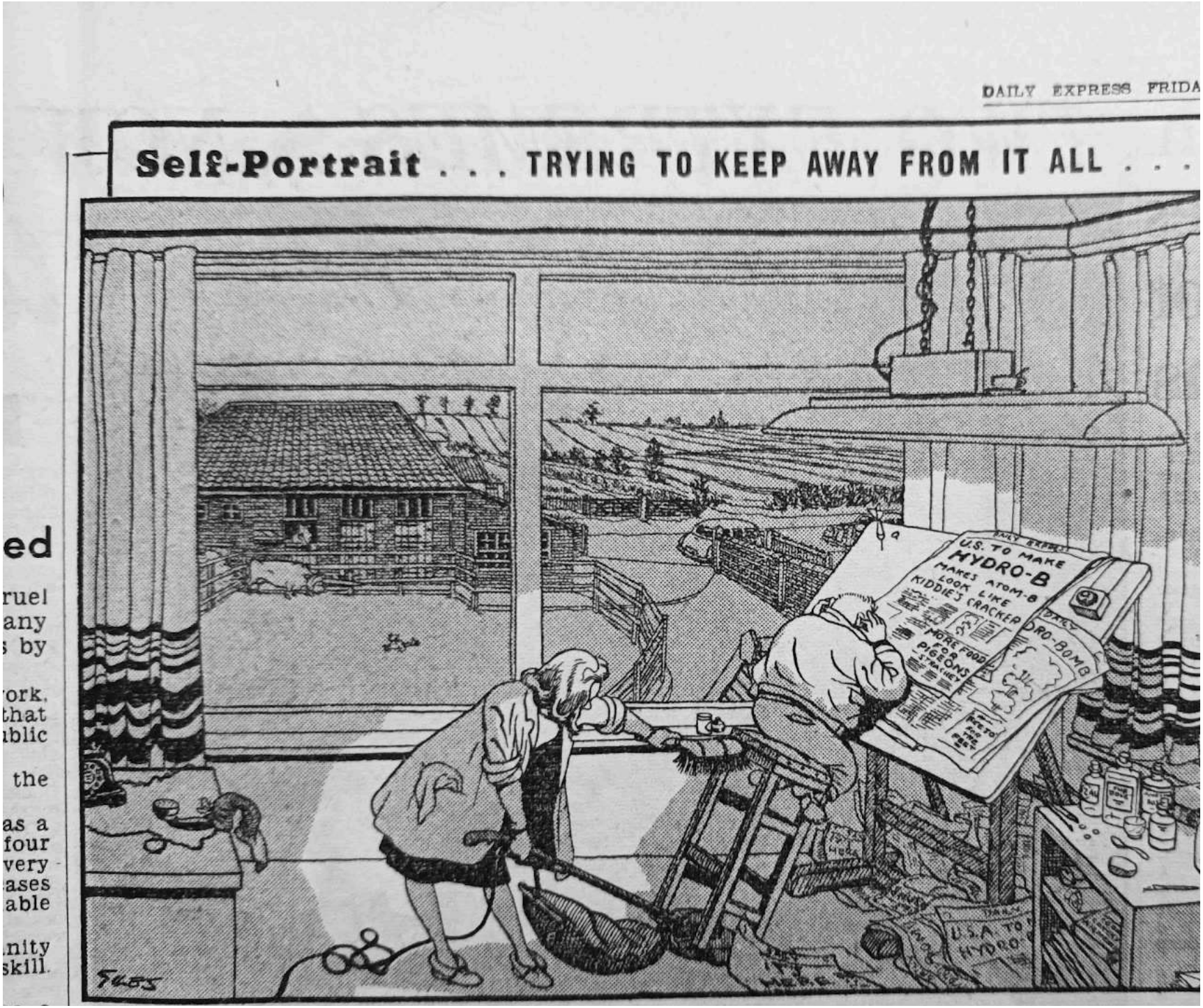
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families, but it will be ille
give lifts to neighbours.

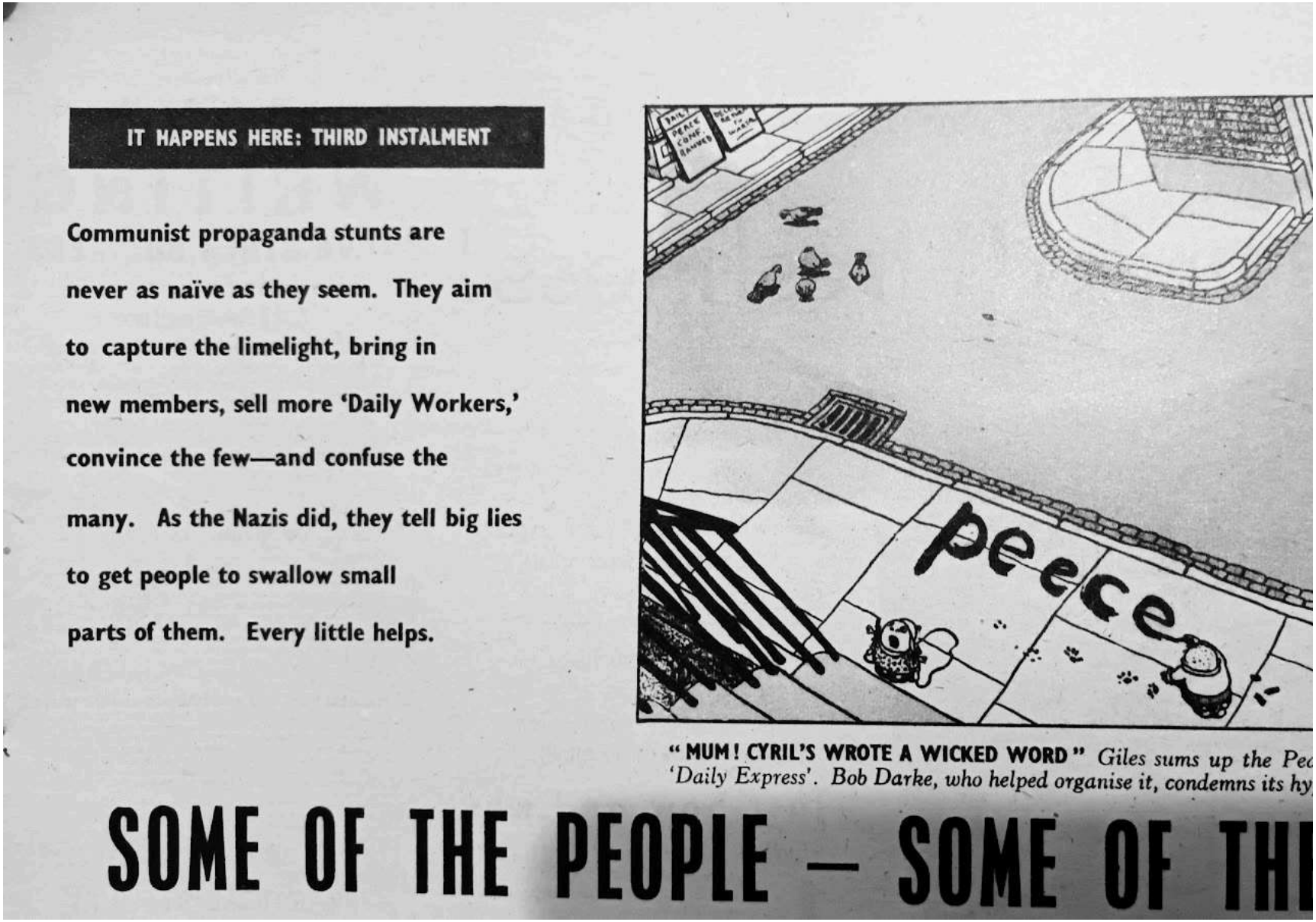
Liberals are philosophical.
prefer a fine day, but are
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Communists would
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SO DEPRESSIN

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DAILY EXPRESS FRIDA
Self-Portrait . . . TRYING TO KEEP AWAY FROM IT ALL . . .
U.S. TO MAKE HYDRO-B
MAKES ATOM-B LOOK LIKE KIDDIE'S CRACKER
MORE FOOD FOR PIGEONS STARVING
HYDRO-BOMB
FLOS



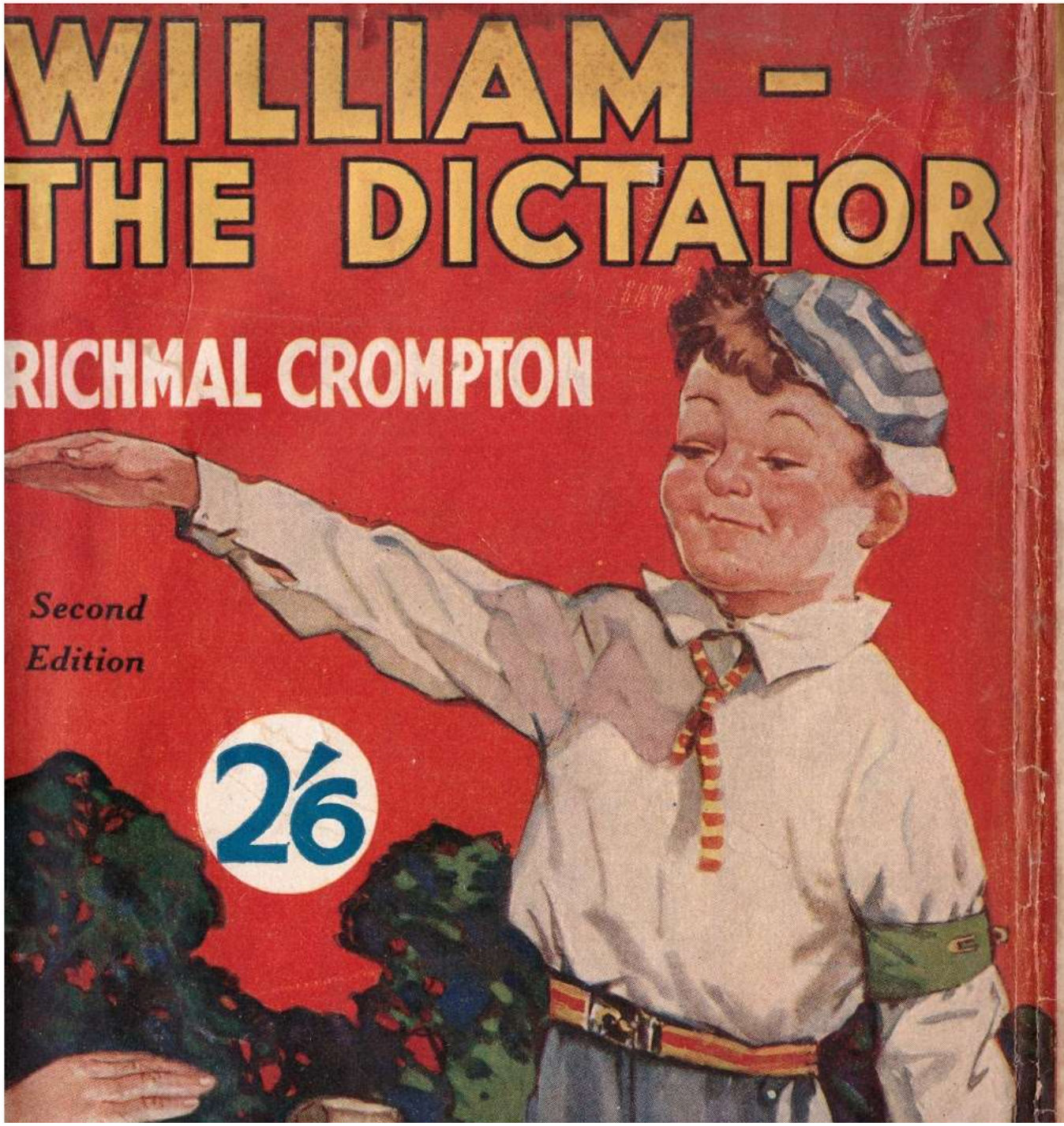
ABOVE: 16 February 1950 Daily Express editorial on H Bomb problem due to the fact that the UN is another virtue signalling but really war mongering League of Nations (which oversaw Nazi appeasement and the outbreak of WWII); **however Fuchs had attended the April 1946 Super Conference during which the Russian version of the H-bomb involving isentropic radiation implosion of a separate low-density fusion stage (unlike Teller's later dense metal ablation rocket implosion secondary TX14 Alarm Clock and**

Sausage designs) were discussed and then given to Russia. The media was made aware only that Fuchs hade given the fission bomb to Russia. The FBI later visited Fuchs in British jail, showed him a film of Harry Gold (whom Fuchs identified as his contact while at Los Alamos) and also gave Fuchs a long list of secret reports to mark off individually so that they knew precisely what Stalin had been given. Truman didn't order H-bomb research and development because Fuchs gave Stalin the A-bomb, but because he gave them the H-bomb. The details of the Russian H-bomb are still being covered up by those who want a repetition of 1930s appeasement, or indeed the deliberate ambiguity of the UK Cabinet in 1914 which made it unclear what the UK would do if Germany invaded Belgium, allowing the enemy to exploit that ambiguity, starting a world war. The key fact usually covered up (Richard Rhodes, Chuck Hansen, and the whole American "expert nuclear arms community" all misleadingly claim that Teller's Sausage H-bomb design with a single primary and a dense ablator around a cylindrical secondary stage - uranium, lead or tungsten - is the "hydrogen bomb design") here is that **two attendees of the April 1946 Super Conference, the report author Egon Bretscher and the radiation implosion discoverer Klaus Fuchs** - were British, and both contributed key H-bomb design principles to the Russian and British weapons (discarded for years by America). Egon Bretscher for example wrote up the Super Conference report, during which attendees suggested various ways to try to achieve **isentropic compression of low-density fusion fuel** (a concept discarded by Teller's 1951 Sausage design, but used by Russia and re-developed in America on Nuckolls 1962 Ripple tests), and after Teller left Los Alamos, **Bretscher took over work on Teller's Alarm Clock layered fission-fusion spherical hybrid device before Bretscher himself left Los Alamos and became head of nuclear physics at Harwell, UK,**, submitting UK report together with Fuchs (head of theoretical physics at Harwell) which **led to Sir James Chadwick's UK paper on a three-stage thermonuclear Super bomb which formed the basis of Penney's work at the UK Atomic Weapons Research Establishment. While Bretscher had worked on Teller's hybrid Alarm Clock (which originated two months after Fuchs left Los Alamos), Fuchs co-authored a hydrogen bomb patent with John von Neumann, in which radiation implosion and ionization implosion was used. Between them, Bretscher and Fuchs had all the key ingredients. Fuchs leaked them to Russia and the problem persists today in international relations.**

There are four ways of dealing with aggressors: conquest (fight them), intimidation (deter them), fortification (shelter against their attacks; historically used as castles, walled cities and even walled countries in the case of China's 1,100 mile long Great Wall and Hadrian's Wall, while the USA has used the Pacific and Atlantic as successful moats against invasion, at least since Britain invaded Washington D.C. back in 1812), and friendship (which if you are too weak to fight, means appeasing them, as Chamberlain shook hands with Hitler for worthless peace promises). These are not mutually exclusive: you can use combinations. If you are very strong in offensive capability and also have walls to protect you while your back is turned, you can - as Teddy Roosevelt put it (quoting a West African proverb): "Speak softly and carry a big stick." But if you are weak, speaking softly makes you a target, vulnerable to coercion. This is why we don't send troops directly to Ukraine. When elected in 1960, Kennedy introduced "flexible response" to replace Dulles' "massive retaliation", by addressing the need to deter large provocations without being forced to decide between the unwelcome options of "surrender or all-out nuclear war" (Herman Kahn called this flexible response "Type 2 Deterrence"). This was eroded by both Russian civil defense and their emerging superiority in the 1970s: a real missiles and bombers gap emerged in 1972 when the USSR reached and then exceeded the 2,200 of the USA, while in 1974 the USSR achieve parity at 3,500 equivalent megatons (then exceeded the USA), and finally today Russia has over 2,000 dedicated clean enhanced neutron tactical nuclear weapons and we have none (except low-neutron output B61 multipurpose bombs). (Robert Jastrow's 1985 book *How to make nuclear Weapons obsolete* was the first to have graphs showing the downward trend in nuclear weapon yields created by the development of miniaturized MIRV warheads for missiles and tactical weapons: he shows that the

average size of US warheads fell from 3 megatons in 1960 to 200 kilotons in 1980, and from a total of 12,000 megatons in 1960 to 3,000 megatons in 1980.)

The term "equivalent megatons" roughly takes account of the fact that the areas of cratering, blast and radiation damage scale not linearly with energy but as something like the 2/3 power of energy release; but note that close-in cratering scales as a significantly smaller power of energy than 2/3, while blast wind drag displacement of jeeps in open desert scales as a larger power of energy than 2/3. Comparisons of equivalent megatonnage shows, for example, that WWII's 2 megatons of TNT in the form of about 20,000,000 separate conventional 100 kg (0.1 ton) explosives is equivalent to 20,000,000 x $(10^{-7})^{2/3}$ = 431 separate 1 megaton explosions! The point is, nuclear weapons are *not* of a different order of magnitude to conventional warfare, because: (1) devastated areas don't scale in proportion to energy release, (2) the number of nuclear weapons is very much smaller than the number of conventional bombs dropped in conventional war, and (3) because of radiation effects like neutrons and intense EMP, it is possible to eliminate physical destruction by nuclear weapons by a combination of weapon design (e.g. very clean bombs like 99.9% fusion Dominic-Housatonic, or 95% fusion Redwing-Navajo) and burst altitude or depth for hard targets, and create a weapon that deters invasions credibly (without lying local fallout radiation hazards), something none of the biased "pacifist disarmament" lobbies (which attract Russian support) tell you! There's a big problem with propaganda here.



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RICHMAL

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Crompton's latest



ILLUSTRATION: the threat of WWII and the need to deter it was massively derided by popular pacifism which tended to make "jokes" of the Nazi threat until too late (example of 1938 UK fiction on this above; Charlie Chaplin's film "The Great Dictator" is another example), so three years after the Nuremberg Laws and five years after illegal rearmament was begun by the Nazis, in the UK crowds of "pacifists" in Downing Street, London, support friendship with the top racist, dictatorial Nazis in the name of "world peace". The Prime Minister used underhand techniques to try to undermine appeasement critics like Churchill and also later to get W. E. Johns fired from both editorships of Flying (weekly) and Popular Flying (monthly) to make it appear everybody "in the know" agreed with his actions, hence the contrived "popular support" for collaborating with terrorists depicted in these photos. The same thing persists today; in the 1920s and 1930s "pacifist" was driven by claims explosions, fire and poison gas will kill everybody in a knockout blow immediately war breaks out.

Update (30 January 2024): on the important world crisis, **https://vixra.org/abs/2312.0155 gives a detailed review of "Britain and the H-bomb" (linked here), and why the "nuclear deterrence issue" isn't about "whether we should deter evil", but precisely what design of nuclear warhead we should have in order to do that cheaply, credibly, safely, and efficiently without guaranteeing either escalation or the failure of deterrence. When we disarmed our chemical and biological weapons, it was claimed that the West could easily deter those weapons using strategic nuclear weapons to bomb Moscow (which has shelters, unlike us). That failed when Putin used sarin and chlorine to prop up Assad in Syria, and Novichok in the UK to kill Dawn Sturgess in 2018. So it's just not a credible deterrent to say you will bomb Moscow if Putin invades Europe or uses his 2000 tactical nuclear weapons.** An even more advanced deterrent, **the 100% clean very low yield (or any yield) multiplicative staged design without any fissile material whatsoever, just around the corner. Clean secondary stages have been proof-tested successfully for example in the 100% clean Los Alamos Redwing Navajo secondary, and the 100% clean Ripple II secondary tested 30 October 1962, and the laser ignition of very tiny fusion capsules to yield more energy than supplied has been done on 5 December 2022 when a NIF test delivered 2.05 MJ (the energy of about 0.5 kg of TNT) to a fusion capsule which yielded 3.15 MJ, so all that is needed is to combine both ideas in a system whereby suitably sized second stages - ignited in the first place by a capacitative charged circuit sending a pulse of energy to a suitable laser system (the schematic shown is just a sketch of principle - more than one laser would possibly be required for reliability of fusion ignition) acting on tiny fusion capsule as shown - are encased to two-stage "effective primaries" which each become effective primaries of bigger systems, thus a geometric series of multiplicative staging until the desired yield is reached.**

PICTURE POST

No.2. Vol. I October 8, 1938





Note that the actual tiny initial D+T+D capsule can be compressed by one-shot lasers - compact lasers used will exceed their traditional upper power limit and burned out in a fire of a single pulse - in the same way that the gun assembly Hiroshima bomb was based on a one-shot gun. In other words, forget about textbook gun design. The Hiroshima bomb assembly only had to be fired *once*, unlike a field artillery piece which has to be fired many hundreds of times before metal fatigue in Thus, by analogy, the lasers - which can be powered by ramping current pulses from magnetic flux compressor systems - used a clean bomb will be much smaller and lighter than current lab gear which would have to be used thousands of times in repeated experiments. The diagram below shows cylindrical Li6D stages throughout for compact bomb design, but spherical stages can be used, and once a few stages get fired, the flux of 14 MeV neutrons is sufficient to go to cheap natural LiD. To fit into a MIRV warhead, the low density D+T constituents such a clean warhead will have a low nuclear yield, which means that often the question of the current of the invasions that cause wars. It should also be noted that in 1944 von Neumann suggested that the core of a weapon would be compressed by "ionization compression" during fission (where a higher density ionized plasma compresses a lower density ionized plasma) - a process later - named the External Booster principle by Tel[illegible] Frank Close, 'Trinity', Allen Lane, London, 2019, pp156-159 where Close argues that during the April 1946 Superbomb Conference Fuchs extended von Neumann's 1944 internal fusion boosting idea to an external D+T filled BeO walled capsule.

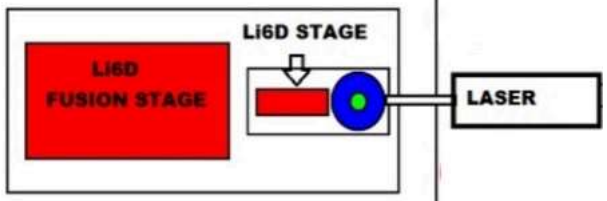
How a simple new approach, multiplicative staging, operates:

Clean secondaries are proven by

Li6D FUSION STAGE

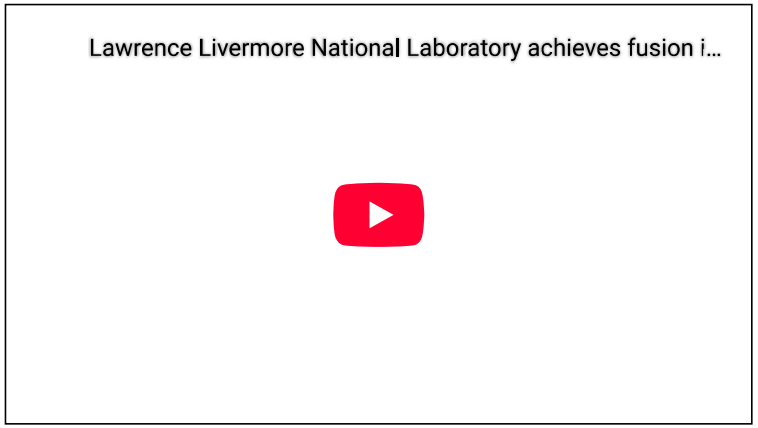
95% clean Navajo 1956 and 99.9% clean Ripple II

Multiplicative staging:

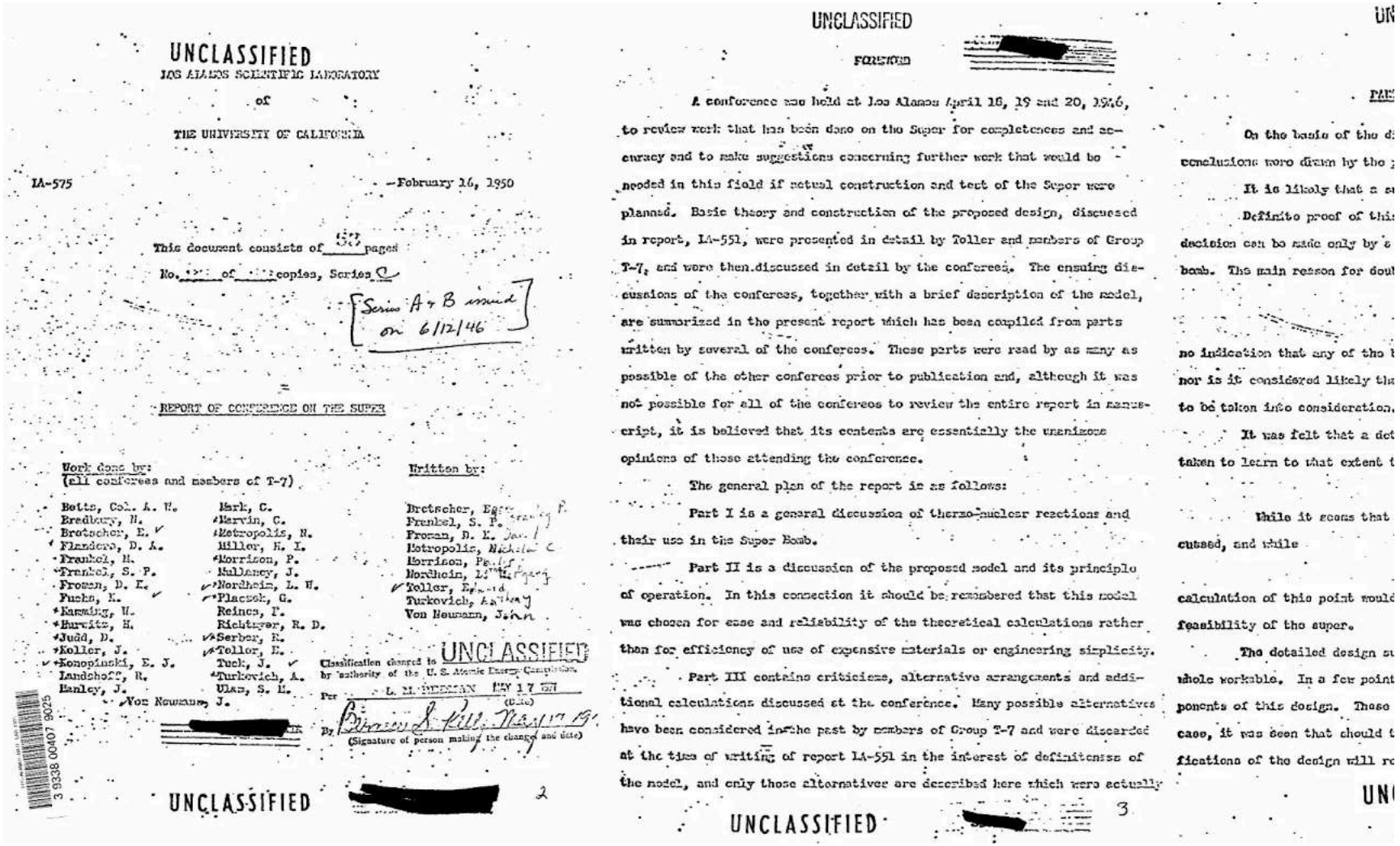


Laser ignition of small fusion capsules is an experimental fact.

D+T gas capsule



"Fuchs reasoned that [the very low energy, 1-10 kev, approximately 10-100 lower energy than medical] x-rays from the [physically separated] uranium explosion would reach the tamper of beryllium oxide, heat it, ionize the constituents and cause them to implode - the **'ionization implosion'** concept of von Neumann but now applied to deuterium and tritium contained within beryllium oxide. To keep the radiation inside the tamper, Fuchs proposed to enclose the device inside a casing impervious to radiation. The implosion induced by the radiation would amplify the compression ... and increase the chance of the fusion bomb igniting. The key here is 'separation of the atomic charge and thermonuclear fuel, and compression of the latter by radiation travelling from the former', which constitutes **'radiation implosion'**."



UNCLASSIFIED
LOS ALAMOS SCIENTIFIC LABORATORY
of
THE UNIVERSITY OF CALIFORNIA

LA-575 February 16, 1950

This document consists of 137 pages
No. 1 of 1 copies, Series C

[Series A & B issued on 6/12/46]

REPORT OF CONFERENCE ON THE SUPER

Work done by:
(all conferees and members of T-7)

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Hanning, H. — Reines, F. — Von Neumann, John
Hurwitz, H. — Richtmyer, R. D.
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Classification changed to UNCLASSIFIED
by authority of the U. S. Atomic Energy Commission
Per L. M. Redman (name) MAY 17 1957 (date)
By [signature] (Signature of person making the change and date)

UNCLASSIFIED 2

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FOREWORD

A conference was held at Los Alamos April 16, 19 and 20, 1946, to review work that has been done on the Super for completeness and accuracy and to make suggestions concerning further work that would be needed in this field if actual construction and test of the Super were planned. Basic theory and construction of the proposed design, discussed in report, LA-551, were presented in detail by Teller and members of Group T-7, and were then discussed in detail by the conferees. The ensuing discussions of the conferees, together with a brief description of the model, are summarized in the present report which has been compiled from parts written by several of the conferees. These parts were read by as many as possible of the other conferees prior to publication and, although it was not possible for all of the conferees to review the entire report in manuscript, it is believed that its contents are essentially the unanimous opinions of those attending the conference.

The general plan of the report is as follows:

Part I is a general discussion of thermo-nuclear reactions and their use in the Super Bomb.

Part II is a discussion of the proposed model and its principle of operation. In this connection it should be remembered that this model was chosen for ease and reliability of the theoretical calculations rather than for efficiency of use of expensive materials or engineering simplicity.

Part III contains criticisms, alternative arrangements and additional calculations discussed at the conference. Many possible alternatives have been considered in the past by members of Group T-7 and were discarded at the time of writing of report LA-551 in the interest of definiteness of the model, and only those alternatives are described here which were actually

UNCLASSIFIED 3

PAR

On the basis of the d
conclusions were drawn by the
It is likely that a s
Definite proof of this
decision can be made only by a
bomb. The main reason for doub

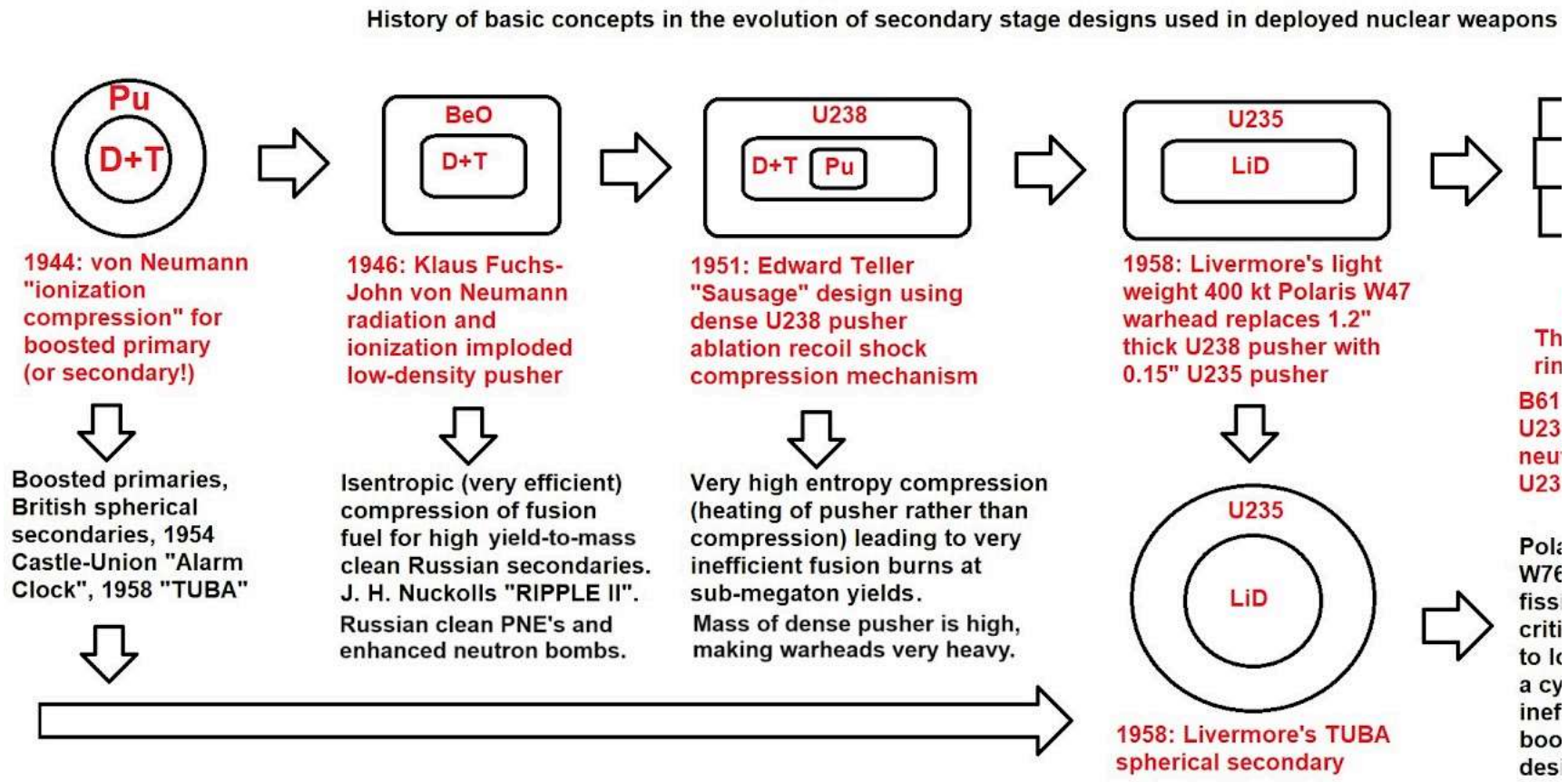
no indication that any of the
nor is it considered likely tha
to be taken into consideration.
It was felt that a det
taken to learn to what extent t

While it seems that
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calculation of this point would
feasibility of the super.
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ponents of this design. These
case, it was seen that should t
fications of the design will re

UN

(This distinction between von Neumann's "**ionization implosion**" INSIDE the tamper, of denser tamper expanding and thus compressing lower density fusion fuel inside, and Fuchs' OUTSIDE capsule "**radiation implosion**", is key even today for isentropic H-bomb design; it seems Teller's key breakthroughs were not separate stages or implosion but rather radiation mirrors and ablative recoil shock compression, where radiation is used to ablate a dense pusher of Sausage designs like Mike in 1952 etc., a distinction not to be confused for the 1944 von Neumann and 1946 Fuchs implosion mechanisms! It appears Russian H-bombs used von Neumann's "ionization implosion" and Fuchs's "radiation implosion" for RDS-37 on 22 November 1955 and also in their double-primary 23 February 1958 test and subsequently, where their fusion capsules reportedly contained a BeO or other low-density outer coating, which would lead to quasi-isentropic compression, more effective for low density secondary stages than purely ablative recoil shock compression. This accounts for the continuing classification of the **April 1946 Superbomb Conference (the extract of 32 pages linked here is so severely redacted** that it



is less helpful than the **brief but very lucid summary of its technical content, in the declassified FBI compilation of reports concerning data Klaus Fuchs sent to Stalin, linked here**!). Teller had all the knowledge he needed in 1946, but didn't go ahead because he made the stupid error of killing progress off by his own "no-go theorem" against compression of fusion fuel. Teller did a "theoretical" calculation in which he claimed that compression has no effect on the amount of fusion burn because the compressed system is simply scaled down in size so that the same efficiency of fusion burn occurs, albeit faster, and then stops as the fuel thermally expands. This was wrong. Teller discusses the reason for his great error in technical detail during his tape-recorded interview by Chuck Hansen at Los Alamos on 7 June 1993 (C. Hansen, Swords of Armageddon, 2nd ed., pp. II-176-7):

"Now every one of these [fusion] processes varied with the square of density. If you compress the thing, then in one unit's volume, each of the 3 important processes increased by the same factor ... Therefore, compression (seemed to be) useless. Now when ... it seemed clear that we were in trouble, then I wanted very badly to find a way out. And it occurred to be than an unprecedentedly strong compression will just *not* allow much energy to go into radiation. Therefore, something *had* to be wrong with my argument and then, you know, within minutes, I knew what must be wrong ... [energy] emission occurs when an electron and a nucleus collide. Absorption does *not* occur when

a light quantum and a nucleus ... or ... electron collide; it occurs when a light quantum finds an electron and a nucleus together ... it does not go with the square of the density, it goes with the cube of the density." (This very costly theoretical error, wasting five years 1946-51, could have been resolved by experimental nuclear testing. There is always a risk of this in theoretical physics, which is why experiments are done to check calculations before prizes are handed out. The ban on nuclear testing is a luddite opposition to technological progress in improving deterrence.)

(This 1946-51 theoretical "no-go theorem" anti-compression error of Teller's, **which was contrary to the suggestion of compression at the April 1946 superbomb conference as Teller himself refers to on 14 August 1952,** and which was corrected only by comparison of the facts about compression validity in pure fission cores in Feb '51 after Ulam's argument that month for fission core compression by lens focussed primary stage shock waves, did not merely lead to Teller's dismissal of vital compression ideas. *It also led to his false equations - exaggerating the cooling effect of radiation emission - causing underestimates of fusion efficiency in all theoretical calculations done of fusion until 1951!* For this reason, Teller later repudiated the calculations that allegedly showed his Superbomb would fizzle; he argued that if it had been tested in 1946, the detailed data obtained - regardless of whatever happened - would have at least tested the theory which would have led to rapid progress, because the theory was wrong. The entire basis of the cooling of fusion fuel by radiation leaking out was massively exaggerated until Lawrence Livermore weaponeer John Nuckolls showed that there is a very simple solution: use baffle re-radiated, softened x-rays for isentropic compression of low-density fusion fuel, e.g. very cold 0.3 kev x-rays rather than the usual 1-10 kev cold-warm x-rays emitted directly from the fission primary. Since the radiation losses are proportional to the fourth-power of the x-ray energy or temperature, losses are virtually eliminated, allowing very efficient staging as for Nuckolls' 99.9% 10 Mt clean Ripple II, detonated on 30 October 1962 at Christmas Island. **Teller's classical Superbomb was actually analyzed by John C. Solem in a 15 December 1978 report, *A modern analysis of Classical Super,* LA-07615, according to a Freedom of Information Act request filed by mainstream historian Alex Wellerstein, FOIA 17-00131-H, 12 June 2017; according to a list of FOIA requests at https://www.governmentattic.org/46docs/NNSAfoiaLogs_2016-2020.pdf**. However, a google search for the documents Dr Wellerstein requested shows only a few at the US Gov DOE Opennet OSTI database or otherwise online yet e.g. **LA-643 by Teller, *On the development of Thermonuclear Bombs* dated 16 Feb. 1950**. The page linked **here stating that report was "never classified" is mistaken!** One oddity about Teller's anti-compression "no-go theorem" is that the even if fusion rates were independent of density, you would still want compression of fissile material in a secondary stage such as a radiation imploded Alarm Clock, because the whole basis of implosion fission bombs is the benefit of compression; another issue is that even if fusion rates are unaffected by density, inward compression would still help to delay the expansion of the fusion system which leads to cooling and quenching of the fusion burn.)

DAILY EXPRESS

No. 15,509 THURSDAY MARCH 2 1950 CONTROLLING SHAREHOLDER LORD BEAVERBROOK Weather: Fair or fine One Penny

ATOM 1 'Man in the know' helped Russia on

ATOM 2 'The Fox' made no mistake in 7 years

TEA Price going up—supplies going down

ATTLEE Socialists told: Revolts are luxuries now

FUCHS GAVE BOMB TO RUSSIA

Survived purges by MI5 and got promotion

CLEVEREST SPY EVER KNOWN

By CHAPMAN PINCHER

IN 90 minutes at the Old Bailey yesterday, a riddle was solved: How did Russia make the atomic bomb so quickly? Dr. Klaus Emil Julius Fuchs, confidant and leading member of Britain's atom team, who began a 14-year jail sentence last night, gave them the know-how.

Almost from the first exciting moments in 1942 when British scientists were proving an atomic bomb was feasible, Fuchs had been fully in the know.

After release from 18B internment he joined another ex-German, Berlin-born Professor Rudolf Peierls, at Birmingham University. The value of the knowledge he built up at this stage is shown by this official statement:—

"Professor Peierls, assisted by Dr. Fuchs and others, used the experimental data provided by Liverpool and Cambridge to calculate the critical size of the bomb. They examined the mechanics of the reaction, and calculated the amount of energy likely to be released in an atomic explosion, studying the conditions for increasing the amount."

THE KREMLIN'S GUIDE

The reports Fuchs helped to prepare—and may have passed on to Soviet agents—had abstruse titles like "Critical radius and time constant of a sphere embedded in a spherical scattering container."

To his scientific counterpart in Moscow such titles promised more detailed evidence of the shape and size of the explosive atom-bomb core.

For two years—1944 to 1946—Fuchs worked in America's Los Alamos atom station, where the bombs were designed and built.

There he picked up those secrets of bomb mechanics about which the Americans are most sensitive.

Since then he has been at Harwell, in Berkshire—the hub of British atom research. As head of the theoretical physics department the latest experimental results from many of the most closely guarded laboratories would be committed to him.

THE KREMLIN'S EAR

How did Fuchs survive security purges to become the most successful spy in history?

On his own confession he has been for seven years the Politburo's representative inside—the most secret atomic establishments of the West.

He was the Kremlin's ear at many confidential conferences. With the steady stream of expertly selected facts he admittedly supplied, the Russians can never have been behind.

Yet only nine months ago, while lesser intelligences were being combed out of defence jobs for long-past membership of the Communist Party, Fuchs was promoted. He was given a £1,800-a-year job.

The inescapable fact is that Fuchs, the brilliant physicist, this man whose name in German means The Fox, was the cleverest spy who ever operated in Britain. In seven active and dangerous years he never made a mistake.

The trail that led to his arrest was picked up during routine counter-espionage in the U.S.

Only when he felt the slackness of the security net being taken up did he show the brittle signs of the amateur agent.

HE CONFESSED

Where a more harshly disciplined spy would have kept quiet, he panicked to Harwell security chief Henry Arnold with a confession. He said that "he had communicated a great deal of information to the enemy."

Fuchs did not hand on his secrets on the principle that scientists have a sacred duty to spread their discoveries. On his own initiative he contacted Russian agents for the precise purpose of furthering the expansion—at whatever cost to the rest of the world—of Stalin's Communism.

Fuchs had not altogether escaped security attention.

A picture of the top ten scientists

PAGE TWO, COL. SIX

Fuchs prepared this atom report in 1943

EFFECT OF A SCATTERING CONTAINER ON THE CRITICAL RADIUS AND TIME CONSTANT

K. Fuchs. SECRET

1. Introduction

We consider in the following the critical radius and the time constant of a chain reaction in a sphere surrounded by a spherical container. We assume essentially that the mean free path is the same in the sphere and the container. For some purposes

This is the sort of information Fuchs passed on . . . Title page of a Government report on research to discover the best shape and size for the explosive core of an atom bomb. Prepared by Dr. Klaus Fuchs in 1943 for the British atom project—then code-named Tube Alloys—it is no longer secret.

Consider now a very thin container and put

$$f(r) = f_0(r) + f_1(r)\,\delta r_2 \qquad (8.3)$$

$$\rho = \rho_0 + \rho_1\,\delta r_2 \qquad \delta r_2 = r_2 - r_1 \ll r_1$$

Subtracting (8.2) from (8.1) and retaining only terms of first order in δr_2 one finds

$$f_1(r) = \tfrac{1}{3}\rho_0 \left\{ \int_0^{r_1} K(r,r')\,f_1(r')\,dr' + \left(\frac{r_1}{r}\right)^3 \int_{r_1}^{r_2} K(r,r')\,f_0(r')\,dr' + \tfrac{1}{3}A \right\}$$

Multiply (8.4) with r_0 and integrate over the sphere, using the

From the same Government report . . . showing the intricate mathematical equations and the symbols in which Fuchs dealt.

separation potential gained in producing the fractional loss in re-mixing. In any one unit the gain (1.6)

$$\sum \frac{b_\mu \delta_\mu^2}{2\left[a(1-a)\right]^2}$$

That lost by re-mixing is

$$\sum \frac{b_\mu \left(\delta_\mu - \mu \frac{da}{dz}\right)^2}{2\left[a(1-a)\right]^2}$$

Hence the difference is

$$\frac{\sum b_\mu \mu^2 \left[\frac{da}{dz}\right]^2 \left[\frac{1}{a(1-a)}\right]^2}{2\left[a(1-a)\right]^2}$$

Top-secret calculations by Klaus Fuchs and Professor Rudolf Peierls to decide the best type of plant for making uranium 235—the atom explosive used in the Hiroshima bomb. The problems involved the use of the most specialised mathematics.

SINGLE WORD IN CODE BETRAYED FUCHS

By PERCY HOSKINS

A CODE name scrawled in a diary is believed to have started detectives on the trail which led to the arrest of Dr. Fuchs.

How the diary came into the hands of Secret Service officers in New York will not be disclosed—"not now or ever," say the G-men—but when the authorities saw the code name pencilled on one of its pages, memory was jogged.

The same name was mentioned in the case of Dr. Alan Nunn May, now serving 10 years for giving away atom secrets.

Arrangements were made for a meeting between Nunn May and a Russian agent outside the British Museum. The agent was to identify himself with the code name after asking the way to the Strand.

Other entries in the diary—some in code—helped the investigators to trace the atom leakage to Fuchs.

Spies are recruited from unsuspicious types of people, and it is usually a seemingly trivial detail like this scrawled name which first attracts the counter-espionage agents.

24-HOUR WATCH

Once a man is suspected of spying, he is never lost sight of. Relays of watchers note the people he contacts. They, too, are followed.

Nunn May's house in Stafford-terrace, Kensington, was under observation from October 1945 till February 1948, when he was arrested. From the moment he left home in the morning until he returned at night, he was never out of a watcher's sight.



FUCHS'S ONLY RELATIVE IN BRITAIN
Gisela Wagner, with Mr. Catchpool, Quaker prison-visitor.

DEARER TEA—AND CUT IN RATION?

Express Staff Reporter

TEA prices are likely to rise, perhaps by 1s. 6d. a lb., a London tea broker said yesterday.

He expects the lump sessions of a Government mini-contract argument going on in Ceylon—which may threaten half an ounce of the 2½oz. tea ration.

Ceylon wants to cut what she sends from 150 million lb. to 100 million lb.—and shares more.

What the remedy proposed any increase would be passed on to the housewife. At present she pays on average 3s. 4d. a lb.

The remedy never has had a lb. to the country 475,000,000.

The Food Ministry may consider removing free buying and requirements from London's tea auction mart.

Milk sales drop—too dear?

People are drinking less milk since it was de-rationed on January 15. Consumption has fallen from the three pints a week to two and a half pints a week. An official of the National Dairymen's Association said: "Maybe it is too dear at 9d. a pint."

No petrol rush

CANBERRA, Wednesday.—Petrol stocks in Australia have been cut 14 per cent since the Tory Government took office. Prof. Minister McLeay says. Consumption has risen little since rationing ended.

Judges step up jail for violence

Express Staff Reporter

JUDGES going on Assize have been recommended to pass heavier prison sentences on men and youths convicted of serious cases of violence.

Lord Goddard, the Lord Chief Justice, called a meeting of judges in his private room at the Law Courts to hear the proposal.

The step was taken because of the increase in violence since

4.30 a.m. LATEST MUSEUM RAIDER HOAXED

CAPE TOWN, Wednesday.—Raider stole "diamonds" from Cape Town Museum. All were glass replicas—one of the glass was diamond.—Express News Service.

FAMILY GASSED

NEW YORK, Wednesday.—Mrs. Arline Kracutler, aged 36, and her five children, aged eight months to 11 years, were found gassed in their home in West Orange, New Jersey, today.

CENtral 8000

Sorging and bribing were abolished by Parliament 18 months ago.

Lord Goddard himself dealt with two cases at the Old Bailey yesterday.

In Case No. 1 he sentenced 17-year-old James Robert Watson to SEVEN YEARS' jail, and 13-year-old Roger Norman Eves to seven years' detention for attacking and robbing a woman in a double-decker from near Hackbridge Station, London.

He told them: "It is on far too criticise the wisdom of Parliament which prevents me doing what I might have done 12 months ago. I could then have had you whipped."

Cosh man: 10 years

In Case No. 2 he sentenced Frederick Gordon Palumbo to TEN YEARS for doing Mrs. Adelaide Richards, a 72-year-old widow, with a cosh at Chelsea home.

"The amount of violence that is going on is shocking," Goddard told him. "I believe largely due to the fact that men now know you can no longer be whipped. The only alternative is a long sentence."

At Stafford Assizes, Mr. Osborne Sherry, aged 25, got SIX YEARS in prison for striking a 17-year-old girl in the face with a broken bottle.

N.Z.—N.W.—N.

WELLINGTON (N.Z.), Wednesday.—A farmer's wife lost her baby last October while packing parcels for Britain. She returned today by a wo Wilmsden, N.W.—Express Service.

BRIDES KICK CLERKS AT AIRPORT

Express Staff Reporter: New York, Wednesday

WOMEN screamed and kicked and men shouted and pounded their fists on counters today when it was announced at Idlewild, New York's airport, that Flight No. 100—for London—would be delayed indefinitely.

Fifty-seven passengers were waiting to board the plane. They had waited two days.

Men and women—some of them war brides—advanced on the clerks in the Pan-American Airways office.

One of the women—Mrs. Margaret Schols, returning to Britain to see her mother who is ill, put her year-old baby into a clerk's arms. "Here," she said. "You take care of him. I have been doing it for two days."

Some of the women kicked out at the clerks.

The passengers made a visit for London—an hour and a half late—on Monday. But the plane had engine trouble and turned back.

WAITED ALL DAY

Passengers were put up for the night in an hotel. Yesterday they went back to Idlewild and waited all day. But still the plane would not go.

Then they heard Pan-American was sending a plane to London—but it was full and was for luxury fare payers only.

Trouble broke out. Officials became so harassed that they put Mrs. Schols and another war bride, Mrs. Daisy MacAndrews, and her two children in the "full" plane.

Others went out two hours later—but a minute or two before the police arrived to restore order.

Cannon-shells in the coal

Eleven cannon shells six inches long were found by men unloading a coal wagon at Canning Town, E., yesterday.

Bomb disposal experts will examine them today. A Coal Board official said: "They came from open-cast workings of the wagon may have been used earlier for scrap metal."

Man races pony

Willie Macfarlane, one-time champion sprinter, now 45, raced a pony and trap over 100 yards for a bet at Stoppes, Lanarkshire, last night. He won by 15 yards in ten and nine-tenth seconds.

Sextuplets

BRUSSELS, Wednesday.—Sextuplets—four boys and two girls—have been born to a 33-year-old African woman in the Belgian Congo. All are well.

'I know something of envoy's death'

NEW YORK, Wednesday.—Russel McKichan, a young American student on his way to New York in the Queen Mary, said by radio-telephone tonight: "I have important information about the death of Captain Eugene Kaipe." Captain Karpe, U.S. naval attache in Bucharest, was found in an Austrian railway tunnel. McKichan dined with him on the train.—Express News Service.

Mr. Joint delays meat talks

Anglo-Argentine negotiations on meat prices were due to start in Buenos Aires yesterday. But Mr. Edgar J. Joint, Commercial Minister to the British Embassy, is still in London. A Treasury official said: "I imagine he has



ABOVE: **the FBI file on Klaus Fuchs contains a brief summary of the secret April 1946 Super Conference at Los Alamos which Fuchs attended, noting that compression of fusion fuel was discussed by Lansdorf during the morning session on 19 April, attended by Fuchs, and that: "Suggestions were made by various people in attendance as to the manner of minimizing the rise in entropy during compression." This fact is vitally interesting, since it proves that an effort was being made then to secure isentropic compression of low-density fusion fuel in April 1946, sixteen years before John H. Nuckolls tested the isentropically compressed Ripple II device on 30 October 1962, giving a 99.9% clean 10 megaton real H-bomb!** So the Russians were given a massive head start on this isentropic compression of low-density fusion fuel for hydrogen bombs, used (according to Trutnev) in both the single primary tests like RDS-37 in November 1955 and also in the double-primary designs which were 2.5 times more efficient on a yield-to-mass basis, tested first on 23 February 1958! According to the FBI report, the key documents Fuchs gave to Russia were LA-551, *Prima facie proof of the feasibility of the Super, 15 Apr 1946* and the LA-575 *Report of conference on the Super, 12 June 1946.* Fuchs also handed over to Russia his own secret Los Alamos reports, such as LA-325, *Initiator Theory, III. Jet Formation by the Collision of Two Surfaces, 11 July 1945, Jet Formation in Cylindrical lmplosion with 16 Detonation Points, Secret, 6 February 1945,* and *Theory of Initiators II, Melon Seed, Secret, 6 January 1945*. Note the reference to Bretscher attending the Super Conference with Fuchs; **Teller in a classified 50th anniversary conference at Los Alamos on the H-bomb claimed that after he (Teller) left Los Alamos for Chicago Uni in 1946, Bretscher continued work on Teller's 31 August 1946 "Alarm Clock" nuclear weapon (precursor of the Mike sausage concept etc) at Los Alamos;** it was this layered uranium and fusion fuel "Alarm Clock" concept which led to the departure of Russian H-bomb design from American H-bomb design, simply because Fuchs left Los Alamos in June 1946, well before Teller invented the Alarm Clock concept on 31 August 1946 (**Teller remembered the date precisely simply because he invented the Alarm Clock on the day his daughter was born, 31 August 1946! Teller and Richtmyer also developed a variant called "Swiss Cheese", with small pockets or bubbles of expensive fusion fuels, dispersed throughout cheaper fuel, in order to kinder a more cost-effective thermonuclear reaction; this later inspired the fission and fusion boosted "spark plug" ideas in later Sausage designs; e.g. security cleared Los Alamos historian Anne Fitzpatrick stated during her 4 March 1997 interview with Robert Richtmyer, who co-invented the Alarm Clock with Teller, that the Alarm Clock evolved into the spherical secondary stage of the 6.9 megaton Castle-Union TX-14 nuclear weapon!**).

SECRET

This document consists of 12 pages
No. 4 of 9 Copies, Series

EVALUATION OF FUCHS CASE
BY COMMITTEE OF SENIOR RESPONSIBLE REVIEWERS

1. The Committee of Senior Responsible Reviewers has examined Info Memo 273/9 (Perrin Report) as well as Info Memo 273/10 (Fuchs statement) and discussed the technical evidence in these documents.

Gaseous diffusion:

However, Fuchs apparently did transmit the fact, according to his own confession, that the barriers would be made of "sintered" nickel.

However, he was familiar with the ideas and early operating designs of the composite and levitated bombs. It should be recalled that

Fuchs was at April 1946 Teller H-bomb conference (he left Los Alamos two months later).

10. In regard to thermonuclear weapons, the extent of Fuchs participation in the work at Los Alamos Laboratory is indicated by the excerpts quoted in the Tab to this report. Fuchs apparently transmitted essentially the ideas contained in the report on the April 1946 "super" conference at Los Alamos (documents LA 551 and LA 575); he was present and a principal participant in this conference.

"d. 19 April 1946 (1000) Third meeting of the "Super"

conference. Messrs. Metropolis and Turkevich discussed numerical calculations on various phases of the "Super" carried out on the "Eniac" calculator at Philadelphia. These solutions

. Mr. Lansdorf discussed the compression properties of deuterium and deuterium plus tritium mixtures.

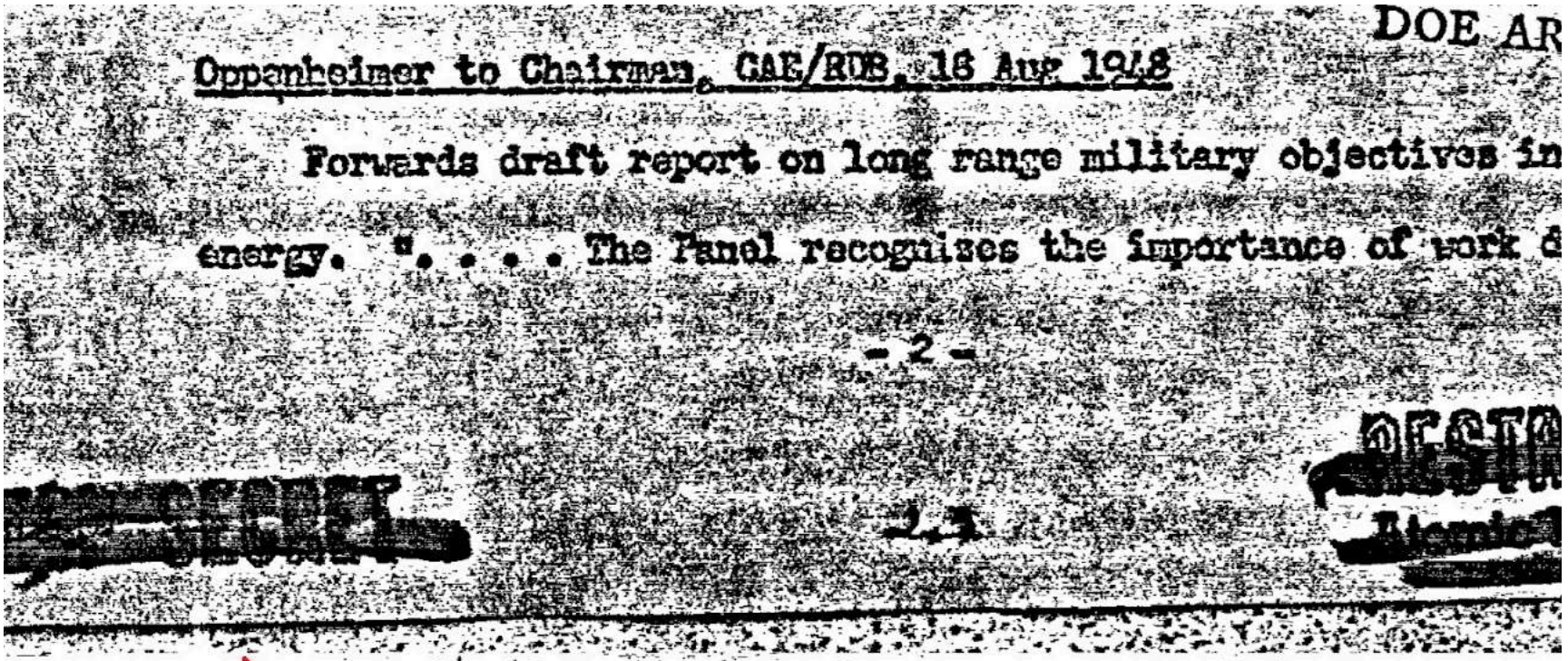
Suggestions were made by various people in attendance as to the manner of minimizing the rise in entropy during compression. In attendance were Messrs. Tuck, Bretscher, and Fuchs.

"e. 19 April 1946 (1400) Fourth meeting of the "Super" conference. Mr. Lansdorf continued his discussion on the compression of the various materials. Mr. Edward Teller then addressed the meeting on the experimental program which was believed necessary in the preparation of a "Super." He mentioned a program for the study of the 14 Mev neutrons released in the nuclear reaction and the cross sections for various processes

FOIA 17-00131-H	6/12/2017	Wellerstein, Alex	Stevens Institute of Technology	Requesting the following list of reports contained in the Lawrence Livermore Alamos National Laboratory (LANL): * UCRL-4374. Weapon development dur 1954. * UCRL-4445. Weapon development during December 1954. No 6. * U by surface explosions. S. Tamor. February 21.955. * UCRL-4514. Weapon de 10. June 3, 1955 * UCRL-4525. Weapon development during May 1955. No Weapon development during June 1955. No 12. Aug 3, 1955 * UCRL-4566. 1955. . No 13. Sep 20, 1955. * UCRL-4574. Weapon development during Au UCRL-4584, Weapon development during September 1955. No 15. Oct 26, 1 development during October 1955. No 16. Nov. 18, 1955. * UCRL-4621. We November 1955. No 17. Dec 15, 1955 * UCRL-4633. Weapon development c 13, 1956 * UCRL-4638. Weapon development during January1956. No 19. F development during February1956. No 20. Mar. 13, 1956 * UCID-15048. Ex the surface of the Earth. J Viecelli, Jan. 1, 1966 * LA-00290-MS. Super-Gadg Konopinski, E. Fermi. Oct. 8, 1945 * LA-00551. Prima facie proof of the feasi 15, 1946 * LA-00615-MS. Predetonation of the Alarm Clock. M.G. Mayer. Se Inhomogeneous bomb. E. Teller. Sep. 29, 1947. * LA 11636. Improved theo Nordheim, E.J. Zadina. June 26, 1947. * LA-00643. On the development of t Sep. 26, 1947 * LA-00645 Remarks on th Alarm Clock, L.W. Nordheim, E.J. Integration of six Alarm Clock models, E.J. Zadina, Jan 22, 1948. * LA-0106 E. Teller, G. Gamow, Jan 25, 1950 * LA-01076, Ignition of a large mass of d tritium mixture problem. CJ Everett, SM Ulam. Mar 7, 1950 * LA-01093, Littl Josephson, R.W. Paine, LL Woodward Mar. 30, 1950 * LA-01102. Detection E.C. Anderson, Apr. 20 1950. * LA-01113, Little Edward design studies, part Woodward. May 17, 1950 * La-01124, Ignition of a large mass of deuterium mixture problem, problem II. C.J. Everett, S.M. Ulam. June 16, 1950 * LA-0 bombs and thermonuclear bombs, May 25, 1950 * LA-01158, Considerations Fermi. S.M. Ulam, Sep. 26, 1950 * LA-01160, Little Edward prototype reacti Paine, LL Woodward, aug. 19, 1950 * LA-01658. Propagation of a thermonu Von Neumann, May 17, 1954 * LA-07615. A modern analysis of Classical Su

https://www.governmentattic.org/46docs/NNSAfoiaLogs_2016-2020.pdf

In fact (see Lawrence Livermore National Laboratory nuclear warhead designer Nuckolls' explanation in report UCRL-74345): "The rates of burn, energy deposition by charged reaction products, and electron-ion heating are proportional to the density, and the inertial confinement time is proportional to the radius. ... The burn efficiency is proportional to the product of the burn rate and the inertial confinement time ...", i.e. the fusion burn rate is directly proportional to the fuel density, which in turn is of course inversely proportional to the cube of its radius. But the inertial confinement time for fusion to occur is proportional to the radius, so the fusion stage efficiency in a nuclear weapon is the product of the burn rate (i.e., 1/radius^3) and time (i.e., radius), so efficiency ~ radius/(radius^3) ~ 1/radius^2. Therefore, for a given fuel temperature, the total fusion burn, or the efficiency of the fusion stage, is inversely proportional to the square of the compressed radius of the fuel! (*Those condemning Teller's theoretical errors or "arrogance" should be aware that he pushed hard all the time for experimental nuclear tests of his ideas, to check if they were correct, exactly the right thing to do scientifically and others who read his papers had the opportunity to point out any theoretical errors, but was rebuffed by those in power, who used a series of contrived arguments to deny progress, based upon what Harry would call "subconscious bias", if not arrogant, damning, overt bigotry against the kind of credible, overwhelming deterrence which had proved lacking a decade earlier, leading to WWII. This callousness towards human*



DOE AR

Oppenheimer to Chairman, GAE/RDB, 16 Aug 1948

Forwards draft report on long range military objectives in

energy. ". . . . The Panel recognises the importance of work d

- 2 -

[redacted]

2.1

[redacted]

Atomic

Wrong ⇨ (2) "In order to detonate a super, the fission 'primer'

certainly not be an implosion. . . . .

Not done till 1951 (Item shot)! ⇨ (3) "The most promising thermonuclear weapon for the sh

would appear to be the 'booster'.

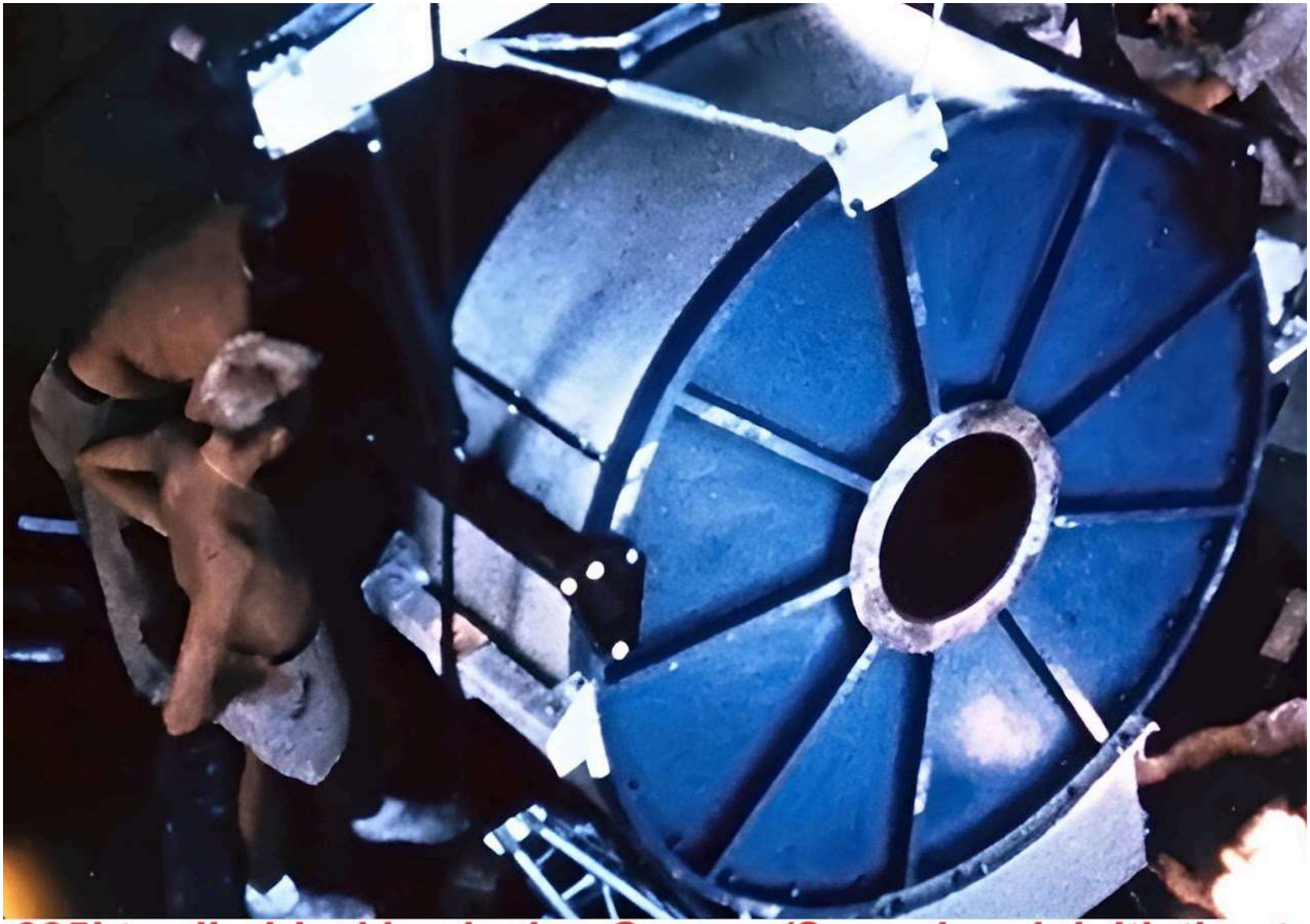
Above: extracts from Oppenheimer's 18 August 1948 Source: PDF pages 23-24 of https://www.osti.gov/opennet/servlets/purl/160911

Note that implosion bombs were discounted as Super primaries i the x-ray attenuation by ~44cm thick HE debris around their core.

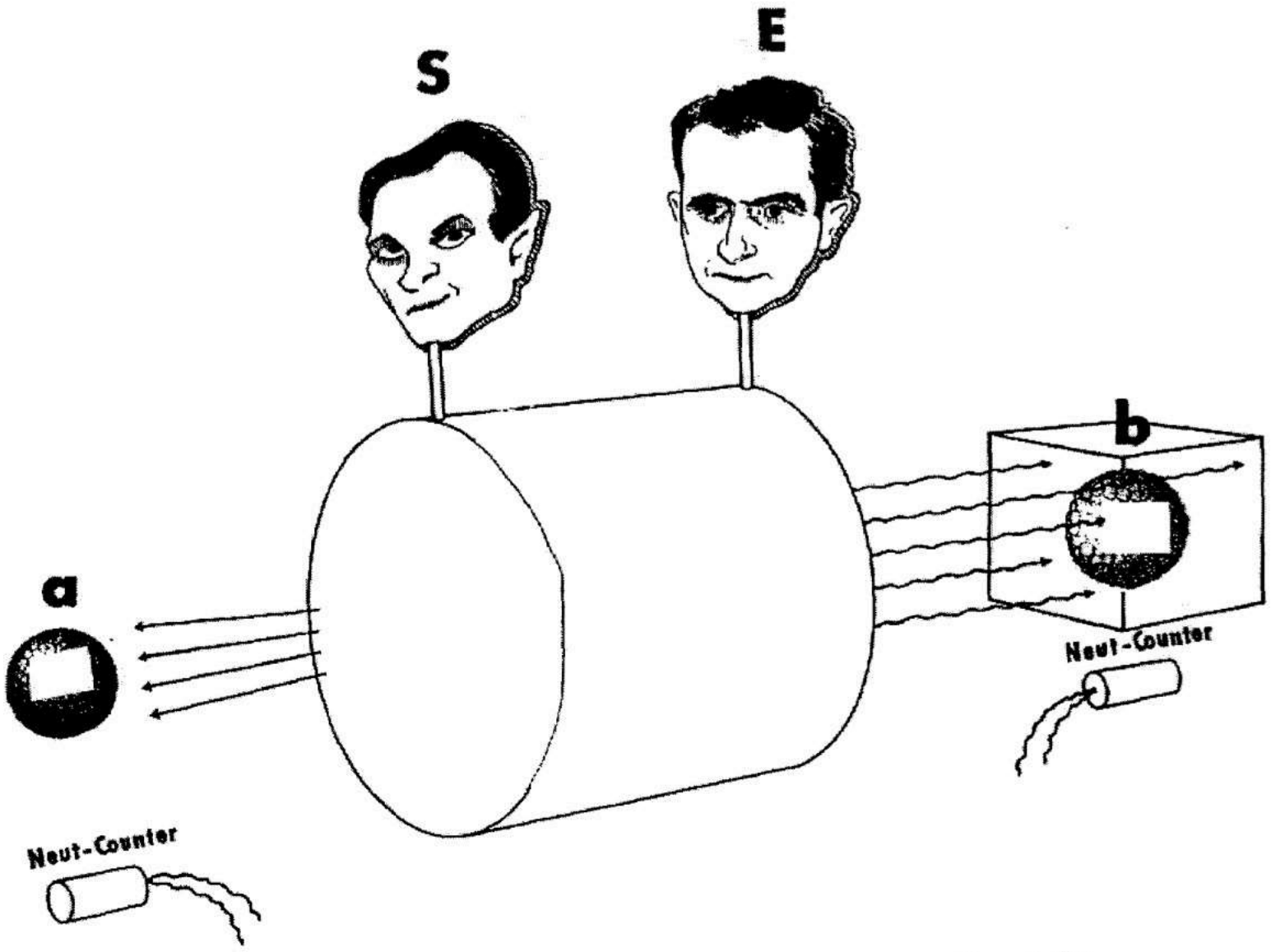
Gamow in Jan 1949 suggested a cylindrical implosion initiator. 22

Gallow in Jan 1949 suggested a cylindrical implosion initiator, 22

suffering in war and under dictatorship existed in some UK physicists too: Joseph Rotblat's hatred of anything to deter Russia be it civil defense or tactical neutron bombs of the West - he had no problem smiling and patting Russia's neutron bomb when visiting their labs during cosy groupthink deluded Pugwash campaigns for Russian-style "peaceful collaboration" - came from deep family communist convictions, since his brother was serving in the Red Army in 1944 when he alleged he heard General Groves declare that the bomb must deter Russia! Rotblat stated he left Los Alamos as a result. The actions of these groups are analogous to the "Cambridge Scientists Anti-War Group" in the 1930s. After Truman ordered a H-bomb, Bradbury at Los Alamos had to start a "Family Committee" because Teller had a whole "family" of H-bomb designs, ranging from the biggest, "Daddy", through various "Alarm Clocks", all the way down to small internally-boosted fission tactical weapons. From Teller's perspective, he wasn't putting all eggs in one basket.)



225kt cylindrical implosion George (Super bomb initiation te
Eniwetok Atoll). NOTE: 9 segments of HE surround hollow U



"You can't lose model."

George Gamow's 14 January 1949 illustration of Ulam and Teller using x-rays from both sides of a cylindrical George fission implosion bomb to implode 2 fusion capsules: LAB-ADWD-25, "Proposals in the Direction of the Super".

Above: declassified illustration from a January 1949 secret report by the popular physics author and Los Alamos nuclear weapons design consultant George Gamow, showing his suggestion of using x-rays from both sides of a cylindrically imploded fission device to expose two fusion capsules to x-rays to test whether compression (fusion in BeO box on right side) helps, or is unnecessary (capsule on left side). Neutron counters detect 14.1 Mev T+D neutrons using time-of-flight method (higher energy neutrons traver faster than ~1 Mev fission stage neutrons, arriving at detectors first, allowing discrimination of the neutron energy spectrum by time of arrival). It took over two years to actually fire this 225 kt shot (8 May 1951)! No wonder Teller was outraged. A few interesting reports by Teller and also Oppenheimer's secret 1949 report opposing the H bomb project as it then stood on the grounds of low damage per dollar - precisely the exact opposite of the "interpretation" the media and gormless fools will assert until the cows come home - are linked here. The most interesting is Teller's 14 August 1952 Top Secret paper debunking Hans Bethe's propaganda, by explaining that contrary to Bethe's claims, Stalin's spy Klaus Fuch had the key "radiation implosion"- see second para on p2 - secret of the H-bomb because he attended the April 1946 Superbomb Conference which was not even attended by Bethe! It was this very fact in April 1946, noted by two British attendees of the 1946 Superbomb Conference before collaboration was ended later in the year by the 1946 Atomic Energy Act, statement that led to Sir James Cladwick's secret use of "radiation implosion" for stages 2 and 3 of his triple staged H-bomb report the next month, "The Superbomb", a still secret document that inspired Penney's original Tom/Dick/Harry staged and radiation imploded H-bomb thinking, which is summarized by security cleared official historian Arnold's Britain and the H-Bomb. Teller's 24 March 1951 letter to Los Alamos director Bradbury was written just 15 days after his historic Teller-Ulam 9 March 1951 report on radiation coupling and "radiation mirrors" (i.e. plastic casing lining to re-radiate soft x-rays on to the thermonuclear stage to ablate and thus compress it), and states: "Among the tests which seem to be of importance at the present time are those concerned with boosted weapons. Another is connected vith the possibility of a heterocatalytic explosion, that is, implosion of a bomb using the energy from another, auxiliary bomb. A third concerns itself with tests on mixing during atomic explosions, which question is of particular importance in connection with the Alarm Clock."

There is more to Fuchs' influence on the UK H-bomb than I go into that paper; Chapman Pincher alleged that Fuchs was treated with special leniency at his trial and later he was given early release in 1959 because of his contributions and help with the UK H-bomb as author of the key Fuchs-von Neumann x-ray compression mechanism patent. For example, Penney visited Fuchs in June 1952 in Stafford Prison; see pp309-310 of Frank Close's 2019 book "Trinity". Close argues that Fuchs gave Penney a vital tutorial on the H-bomb mechanism during that prison visit. That wasn't the last help, either, since the UK Controller for Atomic Energy Sir Freddie Morgan wrote Penney on 9 February 1953 that Fuchs was continuing to help. Another gem: Close gives, on p396, the story of how the FBI became suspicious of Edward Teller, after finding a man of his name teaching at the NY Communist Workers School in 1941 - the wrong Edward Teller, of course - yet Teller's wife was indeed a member of the Communist-front "League of women shoppers" in Washington, DC.

Chapman Pincher, who attended the Fuchs trial, writes about Fuchs hydrogen bomb lectures to prisoners in chapter 19 of his 2014 autobiography, *Dangerous to know* (Biteback, London, pp217-8): "... Donald Hume ... in prison had become a close friend of Fuchs ... Hume had repaid Fuchs' friendship by organising the smuggling in of new scientific books ... Hume had a mass of notes ... I secured Fuchs's copious notes for a course of 17 lectures ... including how the H-bomb works, which he had given to his fellow

prisoners ... My editor agreed to buy Hume's story so long as we could keep the papers as proof of its authenticity ... Fuchs was soon due for release ..."

Chapman Pincher wrote about this as the front page exclusive of the 11 June 1952 Daily Express, "Fuchs: New Sensation", the very month Penney visited Fuchs in prison to receive his H-bomb tutorial! UK media insisted this was evidence that UK security still wasn't really serious about deterring further nuclear spies, and the revelations finally culminated in the allegations that the MI5 chief 1956-65 Roger Hollis was a Russian fellow-traveller (Hollis was descended from Peter the Great, according to his elder brother Chris Hollis' 1958 book *Along the Road to Frome*) and GRU agent of influence, codenamed "Elli". Pincher's 2014 book, written aged 100, explains that former MI5 agent Peter Wright suspected Hollis was Elli after evidence collected by MI6 agent Stephen de Mowbray was reported to the Cabinet Secretary. Hollis is alleged to have deliberately fiddled his report of interviewing GRU defector Igor Gouzenko on 21 November 1945 in Canada. Gouzenko had exposed the spy and Groucho Marx lookalike Dr Alan Nunn May (photo below), and also a GRU spy in MI5 codenamed Elli, who used only duboks (dead letter boxes), but Gouzenko told Pincher that when Hollis interviewed him in 1945 he wrote up a lengthy false report claiming to discredit many statements by Gouzenko: "I could not understand how Hollis had written so much when he had asked me so little. The report was full of nonsense and lies. As [MI5 agent Patrick] Stewart read the report to me [during the 1972 investigation of Hollis], it became clear that it had been faked to destroy my credibility so that my information about the spy in MI5 called Elli could be ignored. I suspect that Hollis was Elli." (Source: Pincher, 2014, p320.) Christopher Andrew claimed Hollis couldn't have been GRU spy Elli because KGB defector Oleg Gordievsky suggested it was the KGB spy Leo Long (sub-agent of KGB spy Anthony Blunt). However, Gouzenko was GRU, not KGB like Long and Gordievsky! Gordievsky's claim that "Elli" was on the cover of Long's KGB file was debunked by KGB officer Oleg Tsarev, who found that Long's codename was actually Ralph! Another declassified Russian document, from General V. Merkulov to Stalin dated 24 Nov 1945, confirmed Elli was a GRU agent inside british intelligence, whose existence was betrayed by Gouzenko. In Chapter 30 of *Dangerous to Know*, Pincher related how he was given a Russian suitcase sized microfilm enlarger by 1959 Hollis spying eyewitness Michael J. Butt, doorman for secret communist meetings in London. According to Butt, Hollis delivered documents to Brigitte Kuczynski, younger sister of Klaus Fuchs' original handler, the notorious Sonia aka Ursula. Hollis allegedly provided Minox films to Brigitte discretely when walking through Hyde Park at 8pm after work. Brigitte gave her Russian made Minox film enlarger to Butt to dispose of, but he kept it in his loft as evidence. (Pincher later donated it to King's College.) Other more circumstantial evidence is that Hollis recruited the spy Philby, Hollis secured spy Blunt immunity from prosecution, Hollis cleared Fuchs in 1943, and MI5 allegedly destroyed Hollis' 1945 interrogation report on Gouzenko, to prevent the airing of the scandal that it was fake after checking it with Gouzenko in 1972.

It should be noted that the very small number of Russian GRU illegal agents in the UK and the very small communist party membership had a relatively large influence on nuclear policy via infiltration of unions which had block votes in the Labour Party, as well the indirect CND and "peace movement" lobbies saturating the popular press with anti-civil defence propaganda to make the nuclear deterrent totally incredible for any provocation short of a direct all-out countervalue attack. Under such pressure, UK Prime Minister Harold Wilson's government abolished the UK Civil Defence Corps, making the UK nuclear deterrent totally incredible against major provocations, in March 1968. While there was some opposition to Wilson, it was focussed on his profligate nationalisation policies which were undermining the economy and thus destabilizing military expenditure for national security. Peter Wright’s 1987 book Spycatcher and various other sources, including Daily Mirror editor Hugh Cudlipp's book Walking on Water, documented that on 8 May 1968, the Bank of England's director Cecil King, who was also Chairman of Daily Mirror newspapers, Mirror editor Cudlipp and the UK Ministry of

Defence's anti-nuclear Chief Scientific Adviser Sir Solly Zuckerman, met at Lord Mountbatten's house in Kinnerton Street, London, to discuss a coup e'tat to overthrow Wilson and make Mountbatten the UK President, a new position. King's position, according to Cudlipp - quite correctly as revealed by the UK economic crises of the 1970s when the UK was effectively bankrupt - was that Wilson was setting the UK on the road to financial ruin and thus military decay. Zuckerman and Mountbatten refused to take part in a revolution, however Wilson's government was attacked by the Daily Mirror in a front page editorial by Cecil King two days later, on 10 May 1968, headlined "Enough is enough ... Mr Wilson and his Government have lost all credibility, all authority." According to Wilson's secretary Lady Falkender, Wilson was only told of the coup discussions in March 1976.

CND and the UK communist party alternatively tried to claim, in a contradictory way, that they were (a) too small in numbers to have any influence on politics, and (b) they were leading the country towards utopia via unilateral nuclear disarmament saturation propaganda about nuclear weapons annihilation (totally ignoring essential data on different nuclear weapon designs, yields, heights of burst, the "use" of a weapon as a deterrent to PREVENT an invasion of concentrated force, etc.) via the infiltrated BBC and most other media. Critics pointed out that Nazi Party membership in Germany was only 5% when Hitler became dictator in 1933, while in Russia there were only 200,000 Bolsheviks in September 1917, out of 125 million, i.e. 0.16%. Therefore, the whole threat of such dictatorships is a minority seizing power beyond it justifiable numbers, and controlling a majority which has different views. Traditional democracy itself is a dictatorship of the majority (via the ballot box, a popularity contest); minority-dictatorship by contrast is a dictatorship by the fanatically motivated minority by force and fear (coercion) to control the majority. The coercion tactics used by foreign dictators to control the press in free countries are well documented, but never publicised widely. Hitler put pressure on Nazi-critics in the UK "free press" via UK Government appeasers Halifax, Chamberlain and particularly the loathsome UK ambassador to Nazi Germany, Sir Neville Henderson, for example trying to censor or ridicule appeasement critics David Low, to fire Captain W. E. Johns (editor of both Flying and Popular Flying, which had huge circulations and attacked appeasement as a threat to national security in order to reduce rearmament expenditure), and to try to get Winston Churchill deselected. These were all sneaky "back door" pressure-on-publishers tactics, dressed up as efforts to "ease international tensions"! The same occurred during the Cold War, with personal attacks in Scientific American and Bulletin of the Atomic Scientists and by fellow travellers on Herman Kahn, Eugene Wigner, and others who warned we need civil defence to make a deterrent of large provocations credible in the eyes of an aggressor.

Chapman Pincher summarises the vast hypocritical Russian expenditure on anti-Western propaganda against the neutron bomb in Chapter 15, "The Neutron Bomb Offensive" of his 1985 book *The Secret Offensive*: "Such a device ... carries three major advantages over Hiroshima-type weapons, particularly for civilians caught up in a battle ... against the massed tanks which the Soviet Union would undoubtedly use ... by exploding these warheads some 100 feet or so above the massed tanks, the blast and fire ... would be greatly reduced ... the neutron weapon produces little radioactive fall-out so the long-term danger to civilians would be very much lower ... the weapon was of no value for attacking cities and the avoidance of damage to property can hardly be rated as of interest only to 'capitalists' ... As so often happens, the constant repetition of the lie had its effects on the gullible ... In August 1977, the [Russian] World Peace Council ... declared an international 'Week of action' against the neutron bomb. ... Under this propaganda Carter delayed his decision, in September ... a Sunday service being attended by Carter and his family on 16 October 1977 was disrupted by American demonstrators shouting slogans against the neutron bomb [see the 17 October 1977 Washington Post] ... Lawrence Eagleburger, when US Under Secretary of State for Political Affairs, remarked, 'We consider it probably that the Soviet campaign against the 'neutron bomb cost some $100 million'. ... Even the Politburo must have been surprised at the size of what it could regard as a Fifth Column in almost every

country." [Unfortunately, Pincher himself had contributed to the anti-nuclear nonsense in his 1965 novel "Not with a bang" in which small amounts of radioactivity from nuclear fallout combine with medicine to exterminate humanity! The allure of anti-nuclear propaganda extends to all who which to sell "doomsday fiction", not just Russian dictators but mainstream media story tellers in the West. By contrast, Glasstone and Dolan's 1977 Effects of Nuclear Weapons doesn't even mention the neutron bomb, so there was no scientific and technical effort whatsoever by the West to make it a credible deterrent even in the minds of the public it had to protect from WWIII!]

"The Lance warhead is the first in a new generation of tactical mini-nukes that have been sought by Army field leading advocates: the series of American generals who have commanded the North Atlantic Treaty organization theater. They have argued that the 7,000 unclear warheads now in Europe are old, have too large a nuclear yield and thus would not be used in a war. With lower yields and therefore less possible collateral damage to civilian populated areas, these commanders have argued, the new mini-nukes are more credible as deterrents because they just might be used on the battlefield without leading to automatic nuclear escalation. Under the nuclear warhead production system, a President must personally give the production order. President Ford, according to informed sources, signed the order for the enhanced-radiation Lance warhead. The Lance already has regular nuclear warheads and it deployed with NATO forces in Europe. In addition to the Lance warhead, other new production starts include: An 8-inch artillery-fired nuclear warhead to replace those now in Europe. This shell had been blocked for almost eight years by Sen. Stuart Symington (D-Mo.), who had argued that it was not needed. Symington retired last year. The Pentagon and ERDA say the new nuclear 8-inch warhead would be safer from stealing by terrorists. Starbird testified. It will be "a command disable system" to melt its inner workings if necessary. ... In longer-term research, the bill contains money to finance an enhanced-radiational bomb to the dropped from aircraft." - Washington post, 5 June 1977.





LEFT: nuclear physics communist spy Dr Alan Nunn May, cleared by MI5 despite his Groucho Marx (photo above) appearance! He was exposed by the the defection of Russian GRU agent Igor Gouzenko in Canada, September 1945 and convicted of espionage and later worked at Ghana University, Accra.

Gouzenko smuggled out
Embassy in Ottawa, Cana
from Colonel Micolai Zab
codename: "Grant") conc
information and also sam
material that Dr Nunn Ma
codename "Alek") had pr
Dr Nunn May told Stalin i
U235 output was 400 gra
Clinton magnetic separat
Pu239 output was 250 gra
MW reactor at Hanford. D
also handed over to Zabo
162 micrograms of U233
platinum foil and 1 mg of
U235 in a glass tube. In a
Nunn May handed over da
proximity anti-aircraft she

ON HETEROCATALYTIC DETONATIONS I.

Hydrodynamic Lenses and Radiation Mirrors

Introduction

In this discussion the following general scheme is consid
By an explosion of one or several conventional auxiliary fission bo
one hopes to establish conditions for the explosion of a "principal
bomb. This latter may be either a fission or a thermonuclear assem

We propose to discuss certain general features of such ar
arrangement. The main purpose of the "auxiliary" system is to indu
very high compressions in the principal assembly. It is known (L.
Nordheim, unpublished data) that, for example, in the "Alarm Clock"
high compressions of the active core will permit economy in the tri
put initially into the system and may be instrumental in starting t
nuclear reactions in assemblies of a feasible size. Ordinarily one

posted by Nuclear Weapons Effects 2:24 am 0 comments

nuclear reactions in assemblies of a feasible size. Ordinarily one high explosives as the auxiliary system. Great compression can be tained, but the size of the highly compressed region is small. In thermonuclear arrangements, like the Alarm Clock, the size and the of the material to be compressed is so great that inordinate amount HE would have to be used. We have the following situation in mind,

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COMMENTS ON BETHE'S HISTORY OF THE THERMONUCLEAR PROGRAM(U)

Matrix Document # SAC2000432900

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The memorandum of Dr. Bethe has been prepared with the intention to prove that

(1) Progress in our thermonuclear program has been rapid since the Presidential Directive of 1950, and

(2) We probably are considerably ahead of the Russians in thermonuclear development.

His arguments are summarized on the last page of his memorandum which, for the sake of convenience, I shall quote:

(1) The DELETED DELETED is probably not feasible, certainly impractical.

(2) There are at present only two promising ways to obtain large-scale thermonuclear reactions, DELETED DELETED DELETED

(3) Development of a possibly practicable device could begin in earnest only after the invention of the radiation implosion which originated outside the thermonuclear program.

(4) The invention DELETED was largely accidental. It is unpredictable whether and when a similar invention was made or will be made by the Russian project. The invention in our project could probably not have been accelerated by harder work. Since the time the invention was made, work has progressed at maximum speed.

(5) The "Alarm Clock" was invented after Fuchs left, DELETED DELETED DELETED

(6) The thermonuclear work at Los Alamos was never really interrupted. Between Fall 1947 and Fall 1949, the booster was developed which proved very important in its own right and proved closer to present design than the 1946 version of a full-scale thermonuclear reaction.

My own opinions differ to some extent on all of the above points:

1. It is true that the detailed design DELETED as conceived in 1946, is in all probability impractical. It is, however, unclear whether or not some minor modifications, DELETED DELETED may alter this situation.

2. Many and varied models of thermonuclear bombs are likely to become feasible and practical by using a fission bomb to compress the thermonuclear bomb. DELETED DELETED DELETED The

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Attachment 1

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present models DELETED examples and more of the kind are likely to be dev DELETED has some promise in its present form. bu it will work. Success of the DELETED
The thermonuclear program in Los Alamos was direct ed above, and neglected general experimentation on one bomb compresses another.

VITAL

Teller debunks Bethe

3. DELETED DELETED The main principle developed in connection with the thermonuclear pro ference on the thermonuclear bomb, in the spring o this conference but Dr. Fuchs did.

4. It is difficult to argue to what exte most difficult for someone who did not make the in me was a relatively generally known in 1946. DELETED DELETED DELETED Since the inve gressed at great speed but in too narrow a directi

5. The use of Li^6 was proposed in this c that is after the arrest of Fuchs. The decision t summer of 1951; thus the idea occurred late and t execution. It is likely that Li^6 will become impo DELETED DELETED

6. The thermonuclear work at Los Alamos still between the spring of 1946 and January 1950. "Alarm Clock", was considered in that period, and people was involved (Richtmayer for approximately approximately a month, Teller approximately two m of perhaps two or three computers for a full year, fall of 1947. Reasonably intensive work was carr second half of 1949. It took four years from the of the booster DELETED DELETED DELETED

I believe that we have pursued the therm the past seven years at much too slow a rate; and tive progress has been slower and certainly narro al security. Our only comfort seems to be that t any evidence of possessing an effective thermonuc that we have excellent indications to the effect feasible and practical. There is no assurance, h lead to a successful big scale explosion and ther the present early plans for a deliverable weapon We may, therefore, be at the beginning of an ardu possible that the Russians have advanced much far

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Teller on the use of fusion neutrons to cause fission in a surr tamper or case in Los Alamos H-bomb research report LA-64

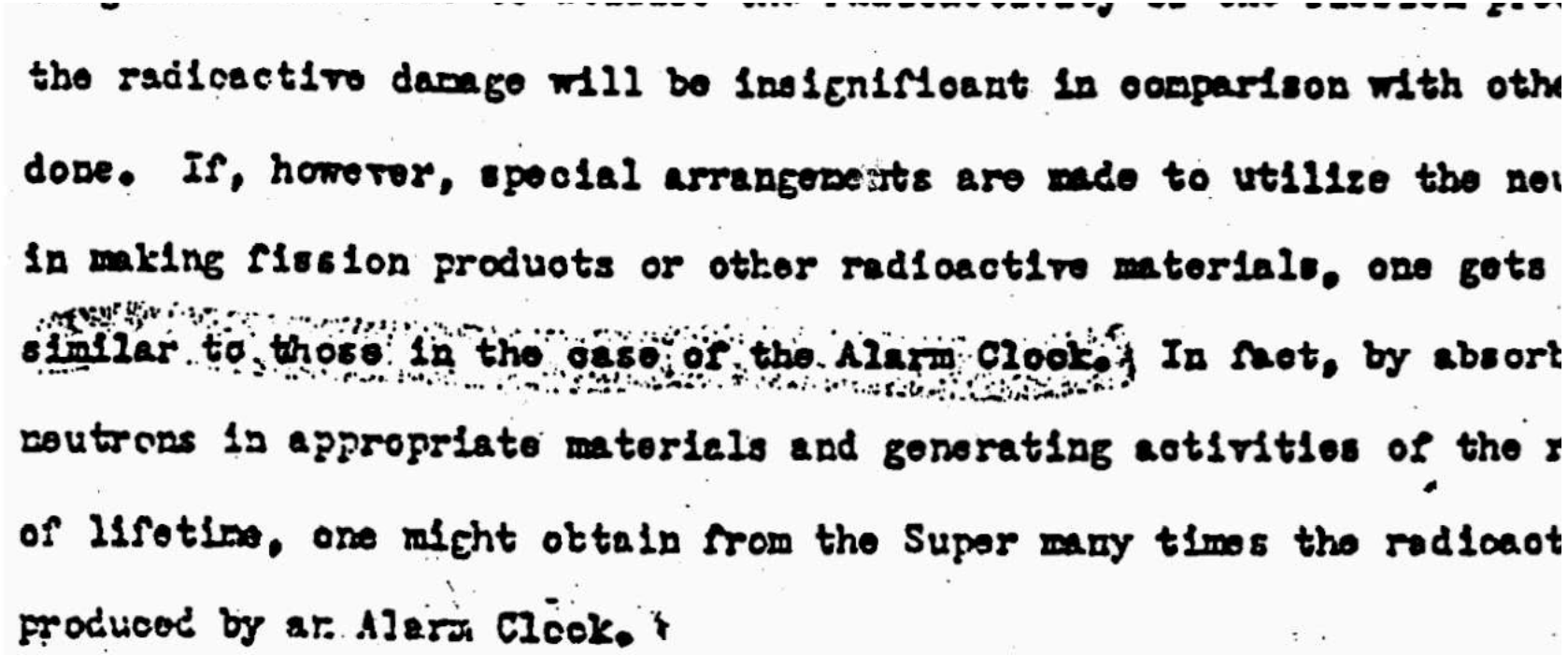
page 17: On the basis of the best available information on cross se we have estimated that the total number of fissions caused by 2½ mi volt neutrons is approximately .2, and the total number of fissions 14 million volt neutrons is .7. In these estimates neutrons slowed below the 28 threshold are not included because

The estimates are consi

with integral experiments in which D-D neutrons are caught in a Ura block (Reported in LA-304) and with similar experiments now in progr the direction of Dr. Taschek in which D-T neutrons are used. The ef of the Deuterium could so far only be crudely estimated

page 25:

If a Super is used instead of the Alarm Clock and if no sp rangements are made to utilize the radioactivity of the fission pro


the radioactive damage will be insignificant in comparison with oth
done. If, however, special arrangements are made to utilize the ne
in making fission products or other radioactive materials, one gets
similar to those in the case of the Alarm Clock. In fact, by absort
neutrons in appropriate materials and generating activities of the
of lifetime, one might obtain from the Super many times the radioact
produced by an Alarm Clock.

This debunks fake news that Teller's and Ulam's 9 March 1951 report LAMS-1225 itself gave Los Alamos the Mike H-bomb design, ready for testing! Teller was proposing a series of nuclear tests of the basic principles, not 10Mt Ivy-Mike *which was based on a report the next month by Teller alone,* LA-1230, "The Sausage: a New Thermonuclear System". When you figure that, what did Ulam actually contribute to the hydrogen bomb? Nothing about implosion, compression or separate stages - all already done by von Neumann and Fuchs five years earlier - and just a lot of drivel about trying to channel material shock waves from a primary to compress another fissile core, a real dead end. What Ulam *did* was to kick Teller out of his self-imposed mental objection to compression devices. Everything else was Teller's; the radiation mirrors, the Sausage with its outer ablation pusher and its inner spark plug. Note also that contrary to official historian Arnold's book (which claims due to a misleading statement by Dr Corner that all the original 1946 UK copies of Superbomb Conference documentation were destroyed after being sent from AWRE Aldermaston to London between 1955-63), all the documents did exist in the AWRE TPN (theoretical physics notes, 100% of which have been perserved) and are at the UK National Archives, e.g. AWRE-TPN 5/54 is listed in National Archives discovery catalogue ref ES 10/5: "Miscellaneous super bomb notes by Klaus Fuchs", see also the 1954 report AWRE-TPN 6/54, "Implosion super bomb: substitution of U235 for plutonium" ES 10/6, the 1954 report AWRE-TPN 39/54 is "Development of the American thermonuclear bomb: implosion super bomb" ES 10/39, see also ES 10/21 "Collected notes on Fermi's super bomb lectures", ES 10/51 "Revised reconstruction of the development of the American thermonuclear bombs", ES 1/548 and ES 1/461 "Superbomb Papers", etc. **Many reports are secret and retained, despite containing "obsolete" designs (although UK report titles are generally unredacted, such as: "Storage of 6kg Delta (Phase) -Plutonium Red Beard (tactical bomb) cores in ships")!** It should also be noted that the Livermore Laboatory's 1958 TUBA spherical secondary with an oralloy (enriched U235) outer pusher was just a reversion from Teller's 1951 core spark plug idea in the middle of the fusion fuel, back to the 1944 von Neumann scheme of having fission material surrounding the fusion fuel. **In other words, the TUBA was just a radiation and ionization imploded, internally**

[redacted]

This document consists o
No. 3 of 3 co

Norris E. Bradbury

Edward Teller

March 24, 195

PLAN FOR SETTING UP A SEPARATE THERMONUCLEAR DIVISION

ADWD-250

R

The Los Alamos Scientific Laboratory has as one of its pri
responsibilities the development of fission weapons. Thermonuclear
has so far been dispersed in several divisions which have heavy comm
ments elsewhere. This situation is bound to produce conflicts of in
and retardation of the thermonuclear program. It is my opinion that

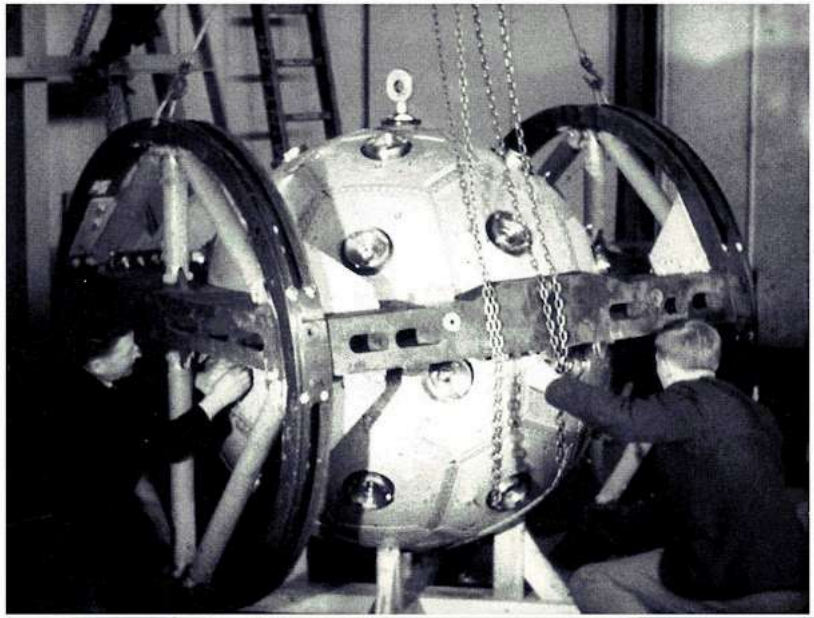
Among the tests which seem to be of importance at the pres
time are those concerned with boosted weapons. Another is connected
the possibility of a heterocatalytic explosion, that is, implosion o
bomb using the energy liberated from another, auxiliary bomb. A thi
concerns itself with tests on mixing during atomic explosions, which
tion is of particular importance in connection with the Alarm Clock.

Teller's 24 March 1951 letter to Los Alamos director Bradbury

written just 15 days after the historic Teller-Ulam 9 March 195
does NOT push for a full-scale 10 Mt test (Teller's sausage de
came in April 1951!), but just tests of OLDER H-bomb design
SOURCE: www.osti.gov/opennet/servlets/purl/16089947.pdf

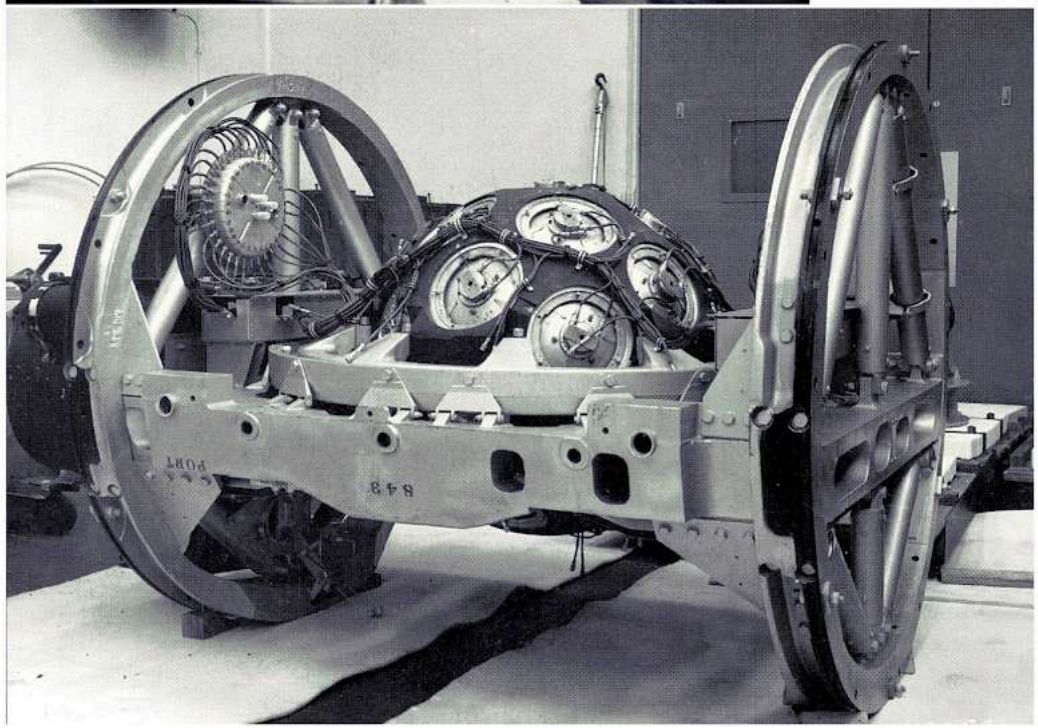
fusion-boosted, second fission stage which could have been accomplished a decade earlier if the will existed, when all of the relevant ideas were already known. ***The declassified UK spherical secondary-stage alternatives linked here (tested as Grapple X, Y and Z with varying yields but similar size, since all used the 5 ft diameter Blue Danube drop casing) clearly show that a far more efficient fusion burn occurs by minimising the mass of hard-to-compress U235 (oralloy) sparkplug/pusher, but maximising the amount of lithium-7, not lithium-6. Such a secondary with minimal fissionable material also automatically has minimal neutron ABM vulnerability (i.e., "Radiation Immunity", RI). This is the current cheap Russian neutron weapon design, but not the current Western design of warheads like the W78, W88 and bomb B61.***

So why on earth doesn't the West take the cheap efficient option of cutting expensive oralloy and maximising cheap natural (mostly lithium-7) LiD in the secondary? Even Glasstone's 1957 Effects of Nuclear Weapons on p17 (para 1.55) states that "Weight for weight ... fusion of deuterium nuclei would produce nearly 3 times as much energy as the fission of uranium or plutonium"! The sad answer is "density"! Natural LiD (containing 7.42% Li6 abundance) is a low density white/grey crystalline solid like salt that actually floats on water (lithium deuteroxide would be formed on exposure to water), since its density is just 820 kg/m^3. Since the ratio of mass of Li6D to Li7D is 8/9, it would be expected that the density of highly enriched 95% Li6D is 739 kg/m^3, while for 36% enriched Li6D it is 793 kg/m^3. Uranium metal has a density of 19,000 kg/m^3, i.e. 25.7 times greater than 95% enriched li6D or 24 times greater than 36% enriched Li6D. Compactness, i.e. volume is more important in a Western MIRV warhead than mass/weight! In the West, it's best to have a tiny-volume, very heavy, very expensive warhead. In Russia, cheapness outweights volume considerations. The Russians in some cases simply allowed their more bulky warheads to protrude from the missile bus (see photo below), or compensated for lower yields at the same volume using clean LiD by using the savings in costs to build more warheads. (The West doubles the fission yield/mass ratio of some warheads by using U235/oralloy pushers in place of U238, which suffers from the problem that about half the neutrons it interacts with result in non-fission capture, as explained below. Note that the 720 kiloton UK nuclear test Orange Herald device contained a hollow shell of 117 kg of U235 surrounded by a what Lorna Arnold's book quotes John Corner referring to a "very thin" layer of high explosive, and was compact, unboosted - the boosted failed to work - and gave 6.2 kt/kg of U235, whereas the first version of the 2-stage W47 Polaris warhead contained 60 kg of U235 which produced most of the secondary stage yield of about 400 kt, i.e. 6.7 kt/kg of U235. Little difference - but because perhaps 50% of the total yield of the W47 was fusion, its efficiency of use of U235 must have actually been *less* than the Orange Herald device, around 3 kt/kg of U235 which indicates design efficiency limits to "hydrogen bombs"! Yet anti-nuclear charlatans claimed that the Orange Herald bomb was a con!)



Comparison of 25 kt UK 1952 bomb Hurricane (6.19 kg Pu239 core), top, and 720 kt pure fission U235 implosion bomb Orange Herald, below. 117kg hollow U235

(5 ft diameter "wheel" cradles support nuclear weapons inside bomb drop case)



Notice small physical size of 720 kt pure fission (boosting failed) orange Herald, due to a very thin layer of high explosives. It gave 6.2 kt/kg of U235, compared to 6.7 for W47!



UK 1.1 megaton Red Snow (copy of American B



UK Grapple Z - Halliard 3-stage bomb (primary, thermonuclear tertiary stages; all spheres), test American request (data exchanged for American



ABOVE: **USA nuclear weapons data declassified by UK Government in 2010** (the information was originally acquired due to the 1958 UK-USA Act for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes, in exchange for UK nuclear weapons data) as published at **http://nuclear-weapons.info/images/tna-ab16-4675p63.jpg**. This single table summarizes all key tactical and strategic nuclear weapons secret results from 1950s testing! (*In order to analyze the warhead pusher thicknesses and very basic schematics from*

CONTROLLABLE DOCUMENT Nº A/ 1171

TOP SECRET ATOMIC

DECLASSIFIED

TOP SECRET ATOMIC

U.K. ATOMIC ENERGY AUTHORITY -9SEP1964 * L.O. ADDIS

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1. The attached table sets out a possible warhead requirement as postu by Ministry of Defence and the manner in which it can be met related to estimated annual and accumulated availability of material from A.E.A., C and the U.S.

2. The quantities of material taken for each type of warhead are as fo

B28 primary = 65kt

		Pu kg	U kg	Li^6 kg	Tritium (AN gm
1600 lb. B28	Red Snow Mt	1.6	11	16	2.54 to 2.49
	Red Snow Kt	1.6	11	0.6	2.54 to 2.49
150lb. W44	Tony	2.25	1.4		6.0
100lb.	Low Tony	0.9	5.6	(0.084kt)	
75 lb. W54	Wee Gwen	1.6	2.42	(0.02kt Davy Crockett	
200lb.	UNA	1.26	12	.75 or 2.7	(50 or 100kt

*his table it is necessary to supplement it with the 1950s warhead design data declassified in other documents, particularly some of the data from **Tom Ramos** and Chuck Hansen, as quoted in some detail below.*) The data on the mass of special nuclear materials in each of the different weapons argues strongly that the entire load of Pu239 and U235 in the 1.1 megaton B28 was in the primary stage, so that weapon could not have had a fissile spark plug in the centre let alone a fissile ablator (unlike Teller's Sausage design of 1951), and so the B28 it appears had no need whatsoever of a beryllium neutron radiation shield to prevent pre-initiation of the secondary stage prior to its compression (on the contrary, such neutron exposure of the lithium deuteride in the secondary stage would be VITAL to produce some tritium in it prior to compression, to spark fusion when it was compressed). Arnold's book indeed explains that UK AWE physicists found the B28 to be an excellent, highly optimised, cheap design, unlike the later W47 which was extremely costly. The masses of U235 and Li6 in the W47 shows the difficulties of trying to maintain efficiency while scaling down the mass of a two-stage warhead for SLBM delivery: much larger quantities of Li6 and U235 must be used to achieve a LOWER yield! To achieve thermonuclear warheads of low mass at sub-megaton yields, both the outer bomb casing and the pusher around the the fusion fuel must be reduced:

Yield data in red is from UK National Archives: AB 16/3240 A
Atomic warheads production committee: general correspondence
SOURCE (of main document above): National Archives, AB 16/4
UKAEA Atomic Warheads Production Cttee. Papers and Minutes,
(released in 2010).
FROM: http://nuclear-weapons.info/images/tna-ab16-4675p63.jp

"York ... studied the Los Alamos tests in Castle and noted most of the weight in thermonuclear devices was in their massive cases. Get rid of the case .... On June 12, 1953, York had presented a novel concept ... It radically altered the way radiative transport was used to ignite a secondary - and his concept did not require a weighty case ... they had taken the Teller-Ulam concept and turned it on its head ... the collapse time for the new device - that is, the amount of time it took for an atomic blast to compress the secondary - was favorable compared to older ones tested in Castle. Brown ... gave a female name to the new device, calling it the Linda." - Dr Tom Ramos (Lawrence Livermore National Laboratory nuclear weapon designer), *From Berkeley to Berlin: How the Rad Lab Helped Avert Nuclear War,* Naval Institute press, 2022, pp137-8. (*So if you reduce the outer casing thickness to reduce warhead weight, you must complete the pusher ablation/compression faster, before the thinner outer casing is blown off, and stops reflecting/channelling x-rays on the secondary stage. Making the radiation channel smaller and ablative pusher thinner helps to speed up the process. Because the ablative pusher is thinner, there is relatively less blown-off debris to block the narrower radiation channel before the burn ends.*)

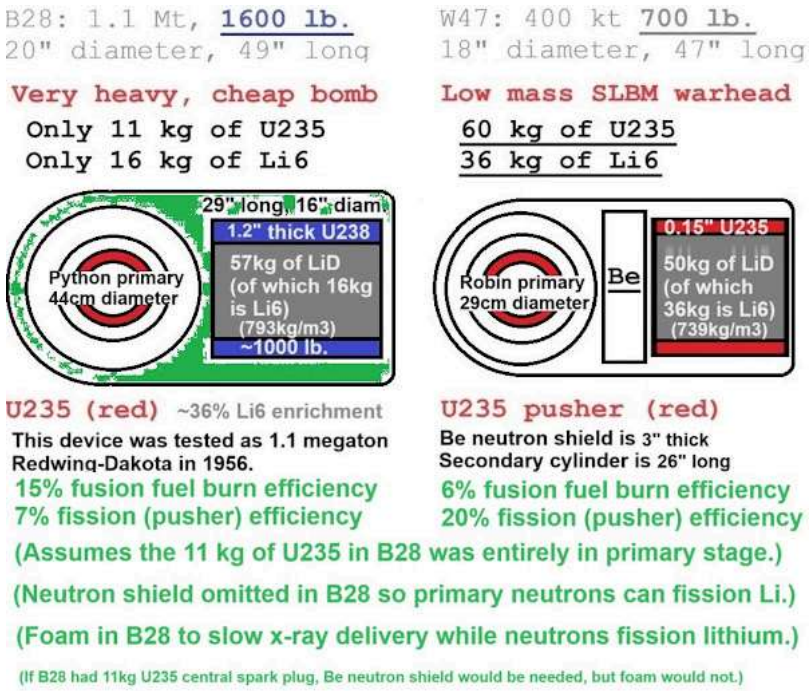
"Brown's third warhead, the Flute, brought the Linda concept down to a smaller size. The Linda had done away with a lot of material in a standard thermonuclear warhead. Now the Flute tested how well designers could take the Linda's conceptual design to substantially reduce not only the weight but also the size of a thermonuclear warhead. ... The Flute's small size - it was the smallest thermonuclear device yet tested - became an incentive to improve codes. Characteristics marginally important in a larger device were now crucially important. For instance, the reduced size of the Flute's radiation channel could cause it to close early [with ablation blow-off debris], which would prematurely shut off the radiation flow. The code had to accurately predict if such a disaster would occur before the device was even tested ... the calculations showed changes had to be made from the Linda's design for the Flute to perform correctly." - Dr Tom Ramos (Lawrence Livermore National Laboratory nuclear weapon designer), *From Berkeley to Berlin: How the Rad Lab Helped Avert Nuclear War,* Naval Institute press, 2022, pp153-4. Note that the piccolo (the W47 secondary) is a **half-sized** flute, so it appears that the W47's secondary stage design miniaturization history was: Linda -> Flute -> Piccolo:

"A Division's third challenge was a small thermonuclear warhead for Polaris [the nuclear SLBM submarine that preceeded today's Trident system]. The starting point was the Flute, that revolutionary secondary that had performed so well the previous year. Its successor was called the Piccolo. For Plumbbob [Nevada, 1957], the design team tested three variations of the Piccolo as a parameter test. One of the variants outperformed the others ... which set the stage for the Hardtack [Nevada and Pacific, 1958] tests. Three additional variations for

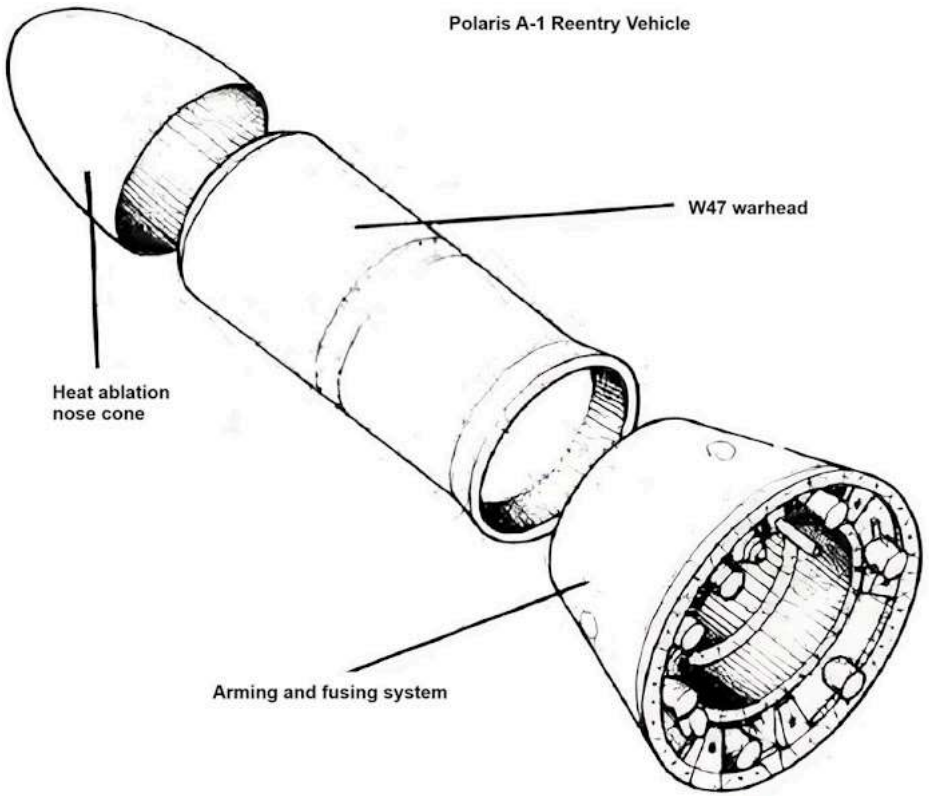
the Piccolo ... were tested then, and again an optimum candidate was selected. ... Human intuition as well as computer calculations played crucial roles ... Finally, a revolutionary device was completed and tested ... the Navy now had a viable warhead for its Polaris missile. From the time Brown gave Haussmann the assignment to develop this secondary until the time they tested the device in the Pacific, only 90 days had passed. As a parallel to the Robin atomic device, this secondary for Polaris laid the foundation for modern thermonuclear weapons in the United States." - Dr Tom Ramos (Lawrence Livermore National Laboratory nuclear weapon designer), *From Berkeley to Berlin: How the Rad Lab Helped Avert Nuclear War,* Naval Institute press, 2022, pp177-8. (Ramos is very useful in explaining that many of the 1950s weapons with complex non-spherical, non-cylindrical shaped primaries and secondaries were simply far too complex to fully simulate on the really pathetic computers they had - Livermore got a 4,000 vacuum tubes-based IBM 701 with 2 kB memory in 1956, AWRE Aldermaston in the Uk had to wait another year for theirs - so they instead did huge numbers of experimental explosive tests. For instance, on p173, Ramos discloses that the Swan primary which developed into the 155mm tactical shell, "went through over 100 hydrotests", non-nuclear tests in which fissile material is replaced with U238 or other substitutes, and the implosion is filmed with flash x-ray camera systems.)

"**An integral feature of the W47, from the very start of the program, was the use of an enriched uranium-235 pusher around the cylindrical secondary**." - Chuck Hansen, Swords 2.0, p. VI-375 (Hansen's source is his own notes taken during a 19-21 February 1992 nuclear weapons history conference he attended; if you remember the context, "Nuclear Glasnost" became fashionable after the Cold War ended, enabling Hansen to acquire almost unredacted historical materials for a few years until nuclear proliferation became a concern in Iraq, Afghanistan, Iran and North Korea). The key test of the original (Robin primary and Piccolo secondary) Livermore W47 was 412 kt Hardtack-Redwood on 28 June 1958. Since Li6D utilized at 100% efficiency would yield 66 kt/kg, the W47 fusion efficiency was only about 6%; since 100% fission of u235 yields 17 kt/kg, the W47's Piccolo fission (the u235 pusher) efficiency was about 20%; the comparable figures for secondary stage fission and fusion fuel burn efficiencies in the heavy B28 are about 7% and 15%, respectively:

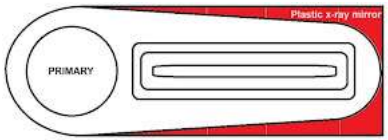
ABOVE: the heavy B28 gave a very "big bang for the buck": it was cheap in terms of expensive Pu, U235 and Li6, and this was the sort of deterrent which was wanted by General LeMay for the USAF, which wanted as many weapons as possible, within the context of Eisenhower's budgetary concerns. But its weight (not its physical size) made it unsuitable for SLBM Polaris warheads. The first SLBM warhead, the W47, was almost the same size as the B28 weapon package, but much lighter due to having a much thinner "pusher" on the secondary, and casing. But this came at a large financial cost in terms of the quantities of special nuclear materials required to get such a lightweight design to work, and also a large loss of total yield. The fusion fuel burn efficiency ranges from 6% for the 400 kt W47 to 15% for the 1.1 megaton B28 (note that for very heavy cased 11-15 megaton yield tests at Castle, up to 40% fusion fuel burn efficiency was achieved), whereas the secondary stage ablative pusher fission efficiency ranged from 7% for a 1.1 inch thick natural uranium (99.3% U238) ablator to 20% for a 0.15 inch thick highly enriched oralloy (U235) ablator. From the brief description of the design evolution given by Dr Tom Ramos (Lawrence Livermore National Laboratory), it appears that when the x-ray channelling outer case thickness of the weapon is reduced to save weight, the duration of the x-ray coupling is reduced, so the dense metal pusher thickness must be reduced if the same compression factor (approximately 20) for the secondary stage is to be accomplished (lithium deuteride, being of low density, is far more compressable by a given pressure, than dense metal). In both examples, the secondary stage is physically a boosted fission stage. (If you are wondering why the hell the designers don't simply use a hollow core U235 bomb like Orange Herald instead of bothering with such inefficient x-ray coupled two-stage designs as these, the answer is straightforward: the risk of large fissile core meltdown by neutrons Moscow ABM defensive nuclear warheads, neutron bombs.)



The overall weight of the W47 was minimized by replacing the usual thick layer of U238 pusher with a very thin layer of fissile U235 (supposedly Teller's suggestion), which is more efficient for fission, but is limited by critical mass issues. The W47 used a 95% enriched Li6D cylinder with a 3.8mm thick U235 pusher; the B28 secondary was 36% enriched Li6D, with a very heavy 3cm thick U238 pusher. As shown below, it appears the B28 was related to the Los Alamos clean design of the TX21C tested as 95% clean 4.5 megatons Redwing-Navajo in 1956 and did not have a central fissile spark plug. From the declassified fallout composition, it is known the Los Alamos designers replaced the outer U238 pusher of Castle secondaries with lead in Navajo. Livermore did the same for their 85% clean 3.53 megatons Redwing-Zuni test, but Livermore left the central fission spark plug, which contributed 10% of its 15% fission yield, instead of removing the neutron shield, using foam channel filler for slowing down the x-ray compression, and thereby using primary stage neutrons to split lithium-6 giving tritium prior to compression. Our point is that Los Alamos got it wrong in sticking too conservatively to ideology: for clean weapons they should have got rid of the dense lead pusher and gone for John H. Nuckolls idea (also used by Fuchs in 1946 and the Russians in 1955 and 1958) of a low-density pusher for isentropic compression of low-density fusion fuel. This error is the reason why those early cleaner weapons were extremely heavy due to unnecessary 2" thick lead or tungsten pushers around the fusion fuel, which massively reduced their yield-to-weight ratios, so that LeMay rejected them!





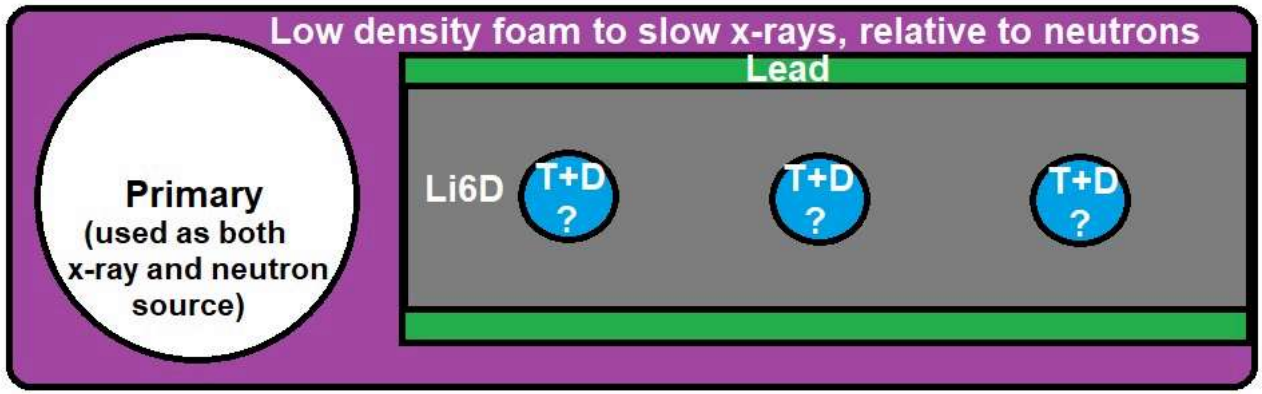


SCHMOO (bowling pin) design for Mike H-bomb radiation channel established by the Panda Committee on 18 January 1952. This Schmoo channel design is tapered in order to focus more x-rays on the far end of Teller's Sausage, which is furthest from the primary stage. (This was named after bowling pin shaped Schmoo in the comic Li'l Abner.) In March 1952 calculations showed that this design would in fact reduce the x-ray exposure to the distant end of the Sausage (on the far right in this diagram). Carson Mark then re-designed the Mike radiation mirrors back to a uniform cylinder with a "big, big, big channel." (Source: Jacob Wechsler interview by Richard Rhodes on 3 June 1994 and letter to Rhodes dated 27 December 1994, cited on pages 486-7 of Dark Sun, 1995.)

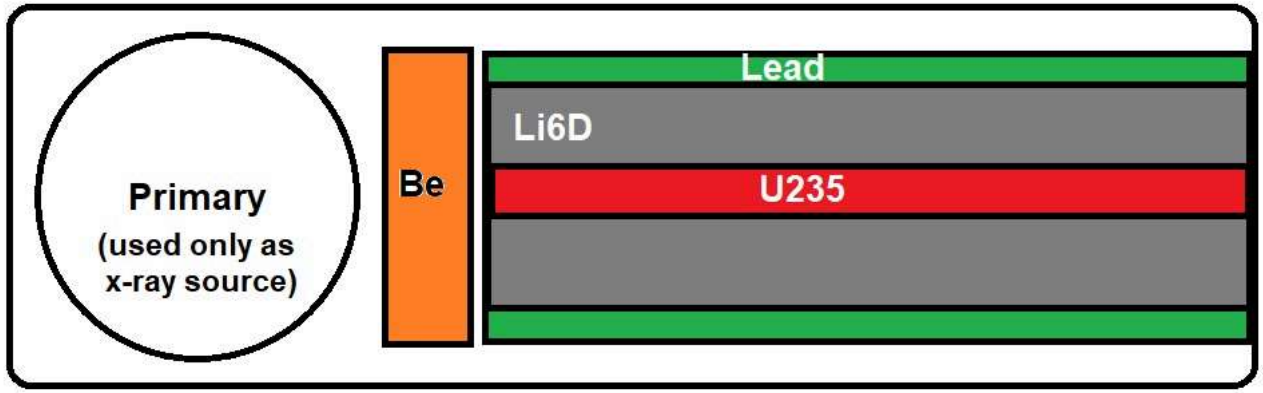


Tapered Sausage design with plastic foam radiation channel obstruction shown in Howard Morland's 1979 Progressive magazine article on the H-bomb and later (with the addition of an obsolete central fission fissile "spark plug" cylinder inside the secondary stage) in his 1981 book The Secret that Exploded. The idea of the tapering secondary stage Morland gives that the x-ray intensity might be expected to rapidly decrease further from the primary stage, particularly if they are being absorbed in plastic foam which fills the radiation channel. The idea here apparently a clean Sausage bomb design such as Navajo, whereby plastic foam slows x-ray energy delivery, in order to give time for the slower primary stage neutrons to split lithium giving tritium.

Compare these data for the 20 inch diameter, 49 inch, 1600 lb, 1.1 megaton bomb B28 to the 18 inch diameter, 47 inch, 700 lb, 400 kt Mk47/W47 Polaris SLBM warhead (this is the correct yield for the first version of the W47 confirmed by UK data in Lorna Arnold Britain and the H-bomb 2001 and **AB 16/3240**; Wikipedia wrongly gives the 600 kt figure in Hansen, which was a speculation or a later upgrade). **The key difference is that the W47 is much lighter, and thus suitable for the Polaris SLBM unlike the heavier, higher yield B28.** Both B28 and W47 used cylindrical sausages, but they are very different in composition; the B28 used a huge mass of U238 in its ablative sausage outer shell or pusher, while the W47 used oralloy/U235 in the pusher. The table shows the total amounts of Pu, Oralloy (U235),



CLEAN NAVAJO (Los Alamos): 4.5 Mt, 5% fission. Lead pusher. No fissile spark plug. Possibly D+T gas capsules (BLUE) to act as all-fusion spark plugs (to produce neutrons for LiD fission into tritium for fusion during compression), but more likely it instead uses only primary neutrons for this, so the foam to slow down light-speed x-ray compression while primary stage neutrons are fissioning LiD near the primary; this process proceeds towards right hand side as x-rays diffuse through foam.



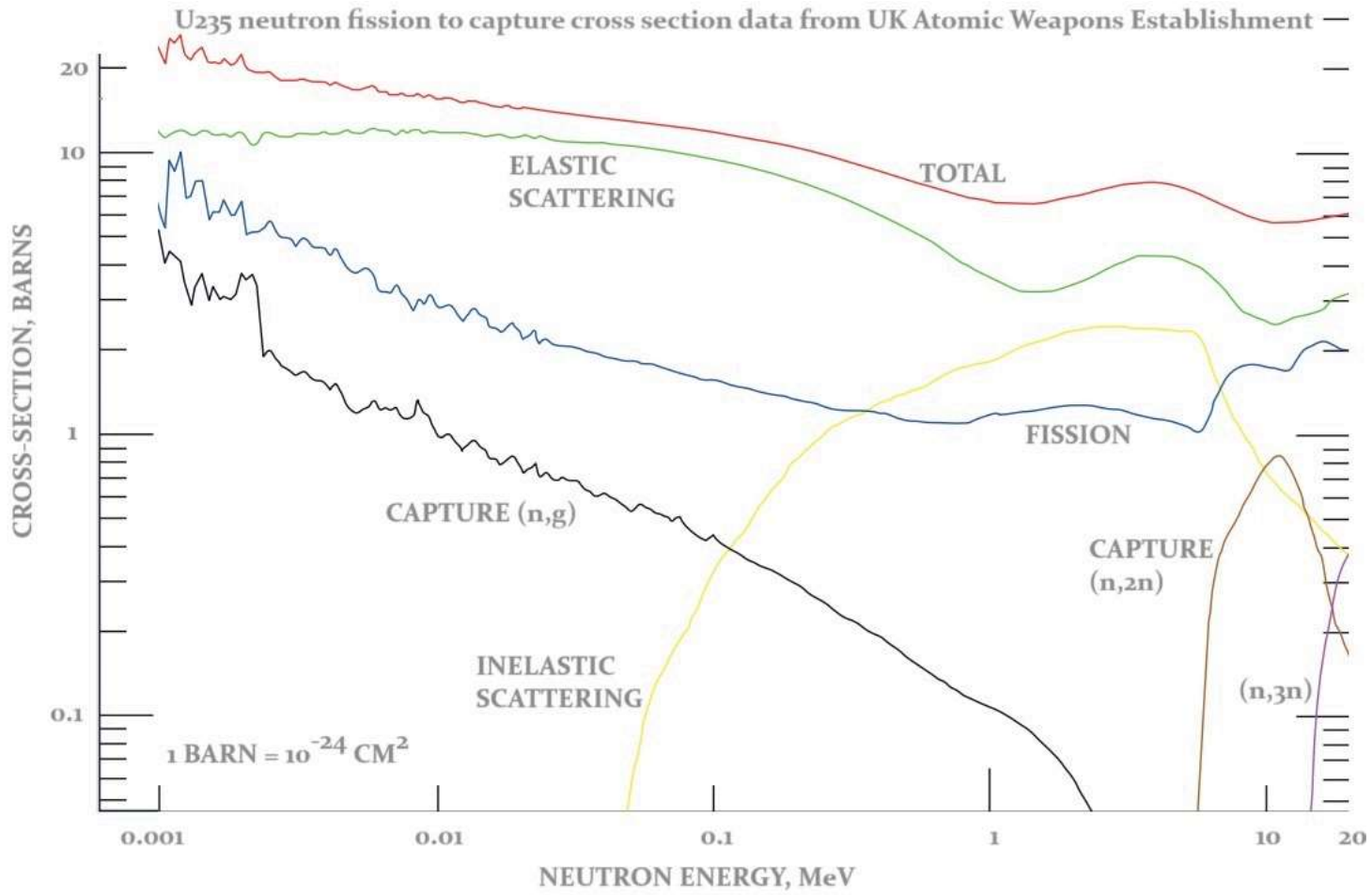
CLEAN ZUNI (Lawrence Livermore): 3.53 Mt, 15% fission. Lead pusher. U235 central spark plug in otherwise clean secondary (spark plug gives 10% of the total 15% fission yield, while primary stage gives the other 5%). This weapon therefore has a beryllium interstage neutron shield (unlike Navajo) to prevent fission of the spark plug by primary stage neutrons prior to secondary compression by x-rays. No foam is needed to slow x-rays because primary neutrons are not being used

NOTE: schematic comparisons of key concepts; the two 1956 Redwing designs are not the same overall size (they were designed independently).

Lithium-6 (excluding cheaper lithium-7, which is also present in varying amounts in different thermonuclear weapons), and tritium (which is used for boosting inside fissile material, essentially to reduce the amount of Pu and therefore the vulnerability of the weapon to Russian enhanced neutron ABM warhead meltdown). The B28 also has an external dense natural U (99.3% U238) "ablative pusher shell" whose mass is not listed in this table. The table shows that the 400 kt W47 Polaris SLBM warhead contains 60 kg of U235 (*nearly as much as the 500 kt pure fission Mk18*), which is in an ablative pusher shell around the lithium deuteride, so that the cylinder of neutron-absorbing lithium-6 deuteride within it keeps that mass of U235 subcritical, until compressed. ***So the 400 kt W47 contains far more Pu, U235, Li6 and T than the higher yield 1.1 megaton B28: this is the big $ price you pay for reducing the mass of the warhead; the total mass of the W47 is reduced to 44% of the mass of the B28, since the huge mass of cheap U238 pusher in the B28 is replaced by a smaller mass of U235, which is more efficient because (as Dr Carl F. Miller reveals in USNRDL-466, Table 6), about half of the neutrons hitting U238 don't cause fission but instead non-fission capture reactions which produce U239, plus the n,2n reaction that produces U237, emitting a lot of very low energy gamma rays in the fallout. For example, in the 1954 Romeo nuclear test (which, for simplicity, we quote since it used entirely natural LiD, with no expensive enrichment of the Li6 isotope whatsoever), the U238 jacket fission efficiency was reduced by capture as follows: 0.66 atom/fission of U239, 0.10 atom/fission of U237 and 0.23 atom/fission of U240 produced by***

fission, a total of 0.66 + 0.10 + 0.23 ~ 1 atom/fission, i.e. 50% fission in the U238 pusher, versus 50% non-fission neutron captures. So by using U235 in place of U238, you virtually eliminate the non-fission capture (see UK Atomic Weapons Establishment graph of fission and capture cross-sections for U235, shown below), which roughly halves the mass of the warhead, for a given fission yield.

This same principle of using an outer U235/oralloy pusher instead of U238 to reduce mass - albeit with the secondary cylindrical "Sausage" shape now changed to a sphere - applies to today's miniaturised, high yield, low mass "MIRV" warheads. Just as the lower-yield W47 counter-intuitively used *more* expensive ingredients than the bulkier higher-yield B28, modern compact, high-yield oralloy-loaded warheads literally cost a bomb, just to keep the mass down! There is evidence Russia uses alternative ideas.



Source: AWE *Discovery*, issue 23, p28

This is justified by the data given for a total U238 capture-to-fission ratio of 1 in the 11 megaton Romeo test and also the cross-sections for U235 capture and fission on the AWE graph for relevant neutron energy range of about 1-14 Mev. **If half the neutrons are captured**

in U238 without fission, then the maximum fission yield you can possibly get from "x" kg of U238 pusher is HALF the energy obtained from 100% fission of "x" kg of U238. Since with U238 only about half the atoms can undergo fission by thermonuclear neutrons (because the other half undergo non-fission capture), the energy density (i.e., the Joules/kg produced by the fission explosion of the pusher) reached by an exploding U238 pusher is only **half** that reached by U235 (in which there is less non-fission capture of neutrons, which doubles the pusher mass without doubling the fission energy release). So a **U235 pusher will reach twice the temperature of a U238 pusher,** doubling its material heating of fusion fuel within, prolonging the fusion burn and thus increasing fusion burn efficiency. 10 MeV neutron energy is important since it allows for likely average scattering of 14.1 MeV D+T fusion neutrons and it is also the energy at which the most important capture reaction, the (n,2n) cross-section peaks for both U235 (peak of 0.88 barn at 10 Mev) and U238 (peak of 1.4 barns at 10 Mev). For 10 Mev neutrons, U235 and U238 have fission cross-sections of 1.8 and 1 barn, respectively. For 14 Mev neutrons, U238 has a (n,2n) cross section of 0.97 barn for U237 production. So ignoring non-fission captures, you need 1.8/1 = 1.8 times greater thickness of pusher for U238 than for U235, to achieve the same amount of fission. But this simple consideration ignores the x-ray ablation requirement of the explosing pusher, so there are several factors requiring detailed computer calculations, and/or nuclear testing.

Note: there is an extensive collection of declassified documents released after Chuck Hansen's final edition, Swords 2.0, which are now available at **https://web.archive.org/web/*/http://www.nnsa.energy.gov/sites/default/files/nnsa/foiareadingroom/***, being an internet-archive back-up of a now-removed US Government Freedom of Information Act Reading Room. Unfortunately they were only identified by number sequence, not by report title or content, in that reeding room, and so failed to achieve wide attention when originally released! (This includes extensive "Family Committee" H-bomb documentation and many long-delayed FOIA requests submitted originally by Hansen, but not released in time for inclusion in Swords 2.0.) As the extract below - from **declassified document RR00132** - shows, some declassified documents contained very detailed information or typewriter spaces that could only be filled by a single specific secret word (in this example, details of the W48 linear implosion tactical nuclear warhead, including the fact that it used PBX9404 plastic bonded explosive glued to the brittle beryllium neutron reflector around the plutonium core using Adiprene L100 adhesive!).

ES&H/WM Safety Survey Report of W48 pit serial number 4902 HE Removal and Packaging Operations at the USDOE Pantex Plant

Beryllium neutron reflector is simply glued to high explosive in W48 linear implosion tactical nuclear warhead:

(Word berylli fits the gaps

On November 12, 1992 at approximately 9:53 am, the berylliu shell of the W48 pit, serial # 4902, cracked during the norma HE removal process. The main charge was removed therefo this occurrence does not involve a nuclear explosive.[1] Les than 100g of residual HE remains bonded to the pit. The for the W48 is PBX 9404 and is bonded to the pit with Adipre L100 adhesive. This safety survey reviewed the propos procedures and safety precautions to complete the HE remov and package the pit into a container for shipment to Lawren Livermore National Laboratories (LLNL). Though this propos process is not time critical as in "emergency" proportions, is time urgent in that every day adds potential risk. T factor that is primarily adding risk is that the crack in t beryllium shell exposes a small surface area of plutonium the humid air in the containment bags.

Source: declassified report https://nnsa.energy.gov/sites/default/files/nnsa/foiareadin om/RR00132.pdf (Liquid nitrogen and hot water were used to try to remove the glued on high explosive/HE from the pit.)

Varying the temperature does not help matters because a
tures radiation flow and heat capacity each vary about as T^3 so
required for heat flow, which depends on their ratio, will be un
higher temperatures radiation flow varies as T^2 and heat capacit
consequent loss.

Bethe, Broyles, and Freeman will prepare a problem for
CPC or SEAC operation which is expected to give a good treatment
propagation along the channel.

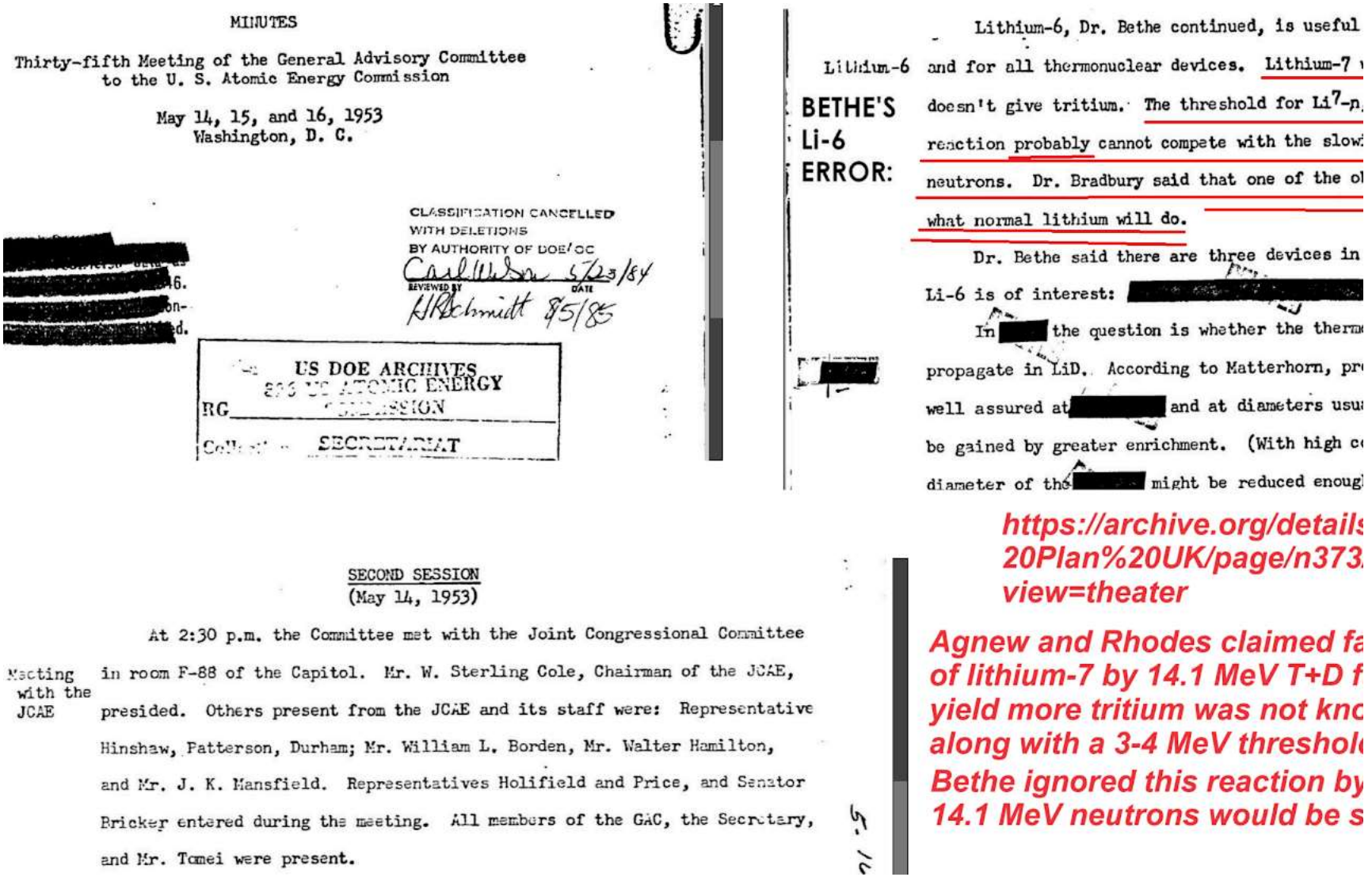
7. Experiments planned for Snapper.

J-Division's primary interest is to investigate experimental tech
proposed for the Ivy test.

Declassified data on the radiation flow analysis for the 10-megaton M
http://nnsa.energy.gov/sites/default/files/nnsa/foiareadingroom/RR0
Note that the "no-go theorem" against any effect from varying the te
later proved false by John Nuckolls (like Teller's anti-compression "

ABOVE: Declassified data on the radiation flow analysis for the 10 megaton Mike sausage: **http://nnsa.energy.gov/sites/default/files/nnsa/foiareadingroom/RR00198.pdf** Note that the simplistic "no-go theorem" given in this extract, against any effect from varying the temperature to help the radiation channelling, was later proved false by John H. Nuckolls (like

Teller's anti-compression "no-go theorem" was later proved false), since lowered temperature delivers energy where it is needed while massively reducing radiation losses (which go as the fourth power of temperature/ x-ray energy in kev).



MINUTES

Thirty-fifth Meeting of the General Advisory Committee
to the U. S. Atomic Energy Commission

May 14, 15, and 16, 1953
Washington, D. C.

[redacted]

CLASSIFICATION CANCELLED
WITH DELETIONS
BY AUTHORITY OF DOE/OC
Carl Wilson 5/23/84
REVIEWED BY DATE
H R Schmidt 8/5/85

US DOE ARCHIVES
RG [redacted] ATOMIC ENERGY COMMISSION
Collection SECRETARIAT

Lithium-6

BETHE'S Li-6 ERROR:

Lithium-6, Dr. Bethe continued, is useful and for all thermonuclear devices. Lithium-7 doesn't give tritium. The threshold for Li^7-n reaction probably cannot compete with the slow neutrons. Dr. Bradbury said that one of the o what normal lithium will do.

Dr. Bethe said there are three devices in Li-6 is of interest: [redacted]

In [redacted] the question is whether the therm propagate in LiD. According to Matterhorn, pr well assured at [redacted] and at diameters usu be gained by greater enrichment. (With high c diameter of the [redacted] might be reduced enoug

https://archive.org/details 20Plan%20UK/page/n373 view=theater

Agnew and Rhodes claimed fa of lithium-7 by 14.1 MeV T+D f yield more tritium was not kno along with a 3-4 MeV threshol Bethe ignored this reaction by 14.1 MeV neutrons would be s

SECOND SESSION
(May 14, 1953)

Meeting with the JCAE

At 2:30 p.m. the Committee met with the Joint Congressional Committee in room F-88 of the Capitol. Mr. W. Sterling Cole, Chairman of the JCAE, presided. Others present from the JCAE and its staff were: Representative Hinshaw, Patterson, Durham; Mr. William L. Borden, Mr. Walter Hamilton, and Mr. J. K. Mansfield. Representatives Holifield and Price, and Senator Bricker entered during the meeting. All members of the GAC, the Secretary, and Mr. Tomei were present.

ABOVE: **Hans A. Bethe's disastrous back-of-the-envelope nonsense "non-go theorem" against lithium-7 fission into tritium by 14.1 Mev D+T neutrons in Bravo (which contained 40% lithium-6 and 60% lithium-7; unnecessarily enriched - at great expense and effort - from the natural 7.42% lithum-6 abundance). It was Bethe's nonsense "physics" speculation, unbacked by serious calculation, who caused Bravo to go off at 2.5 times the expected 6 megatons and therefore for the Japanese Lucky Dragon tuna**

trawler crew in the maximum fallout hotspot area 80 miles downwind to be contaminated by fallout, and also for Rongelap's people to be contaminated ("accidents" that inevitably kickstarted the originally limited early 1950s USSR funded Communist Party anti-nuclear deterrence movements in the West into mainstream media and thus politics). There was simply no solid basis for assuming that the highly penetrating 14.1 Mev neutrons would be significantly slowed by scattering in the fuel before hitting lithium-7 nuclei. Even teller's 1950 report LA-643 at page 17 estimated that in a fission-fusion Alarm Clock, the ratio of 14 Mev to 2.5 Mev neutrons was 0.7/0.2 = 3.5. Bethe's complacently bad guesswork-based physics also led to the EMP fiasco for high altitude bursts, after he failed to predict the geomagnetic field deflection of Compton electrons at high altitude in his secret report "Electromagnetic Signal Expected from High-Altitude Test", Los Alamos report LA-2173, October 1957, Secret. He repeatedly caused nuclear weapons effects study disasters. For the true **utility of lithium-7, which is actually BETTER than lithum-6 at tritium production when struck by 14.1 Mev D+T fusion neutrons, and its consequences for cheap isentropically compressed fusion capsules in Russian neutron bombs, please see my paper here which gives a graph of lithium isotopic cross section versus neutron energy, plus the results when Britain used cheap lithium-7 in Grapple Y to yield 3 megatons (having got lower yields with costly lithium-6 in previous tests!)**.

Downgraded April 1982. Y.M.C.A

DEFE 16/165

UNCLASSIFIED

T 2/59

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40 Pages

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UNITED KINGDOM ATOMIC ENERGY AUTHORITY

ATOMIC WEAPONS RESEARCH ESTABLISHMENT

REPORT No. T 2/59

OPERATION BUFFALO

Target Response Tests
(Co-ordinator: E. R. Drake Seager)

Biology Group
(Group Leader: R. Scott Russell)

Part 3(a): The Effects of Blast on Dummy Men Exposed in the Open

W. J. H. Butterfield, Medical Research Council
Maj. E. G. Hardy, RAMC
E. R. Drake Seager

A.W.R.E.,
Aldermaston, Berks.

UNCLASSIFIED

July, 1959



FIGURE 2. PRONE DUMMIES AT SITE Nº 1 BEFORE THE EVENT

FIGURE 4.

TABLE 2

Displacements Classified According to Drag P
Posture and Orientation

BUFFALO-1, 15 KT

Site No.	Drag Pressure, p.s.i.	Overpressure, p.s.i.	Pos		
			Prone		Crou
			Facing, ft	Sideways, ft	Facing, ft
1	7.4 PRECURSOR	18†	42	66	-
2	4.4	14.5	2.5	69	-
3	3.7	12	2	20	15
4	2.7	10	1	8	16
5	1.9	8.5	1	24*	9
6	1	6.4	-	-	6
7	0.43	4.3	-	-	1
8	0.11	2.4	-	-	-

*This dummy was sited on firm rocky ground. All others were

†Multiple peaks in overpressure record.

At 10 psi peak overpressure in the Buffalo-1 nuclear weapon test at M dummies lying facing the burst (to exposed to blast) were only dragge

T 6/59

[redacted] 11/7/84

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BY AWE ALDERMASTON

UNITED KINGDOM ATOMIC ENERGY AUTHORITY

ATOMIC WEAPONS RESEARCH ESTABLISHMENT

REPORT No. T 6/59 BB005

OPERATION ANTLER

Target Response Group
(Group Leader Plans: E. R. Drake Seager)
(Group Leader Operations: Lt. Col. E. T. Wray, REME)

The Effects of Blast on Dummies and Scout Cars

Maj. A. R. F. Martin, RA

A.W.R.E.,
Aldermaston, Berks.

[redacted]
UNCLASSIFIED

August, 1959



Antler-2 nuclear test, Maralinga, 1957 6 kt

FIGURE 23. DUMMY IN TRENCH AT 2390 ft BEFORE FIRING

FIGURE 24. DU



FIGURE 22. ROUND 2. SCOUT CAR AT 2200 ft AFTER FIRING. NOTE SOIL DISPLACED BY WHEEL WHEN CAR MOVED SIDEWAYS 4 INCHES



FIGURE 21. ROUND 2
NO APPA
WHICH S

30 dum
Buffalo
nuclear
Antler-3



G.Z.

FIGURE 4. ROUND 2. PRONE FACING DUMMY AT 1460 ft
NOTE OVERALL ALMOST OFF, BUT FLESH ONLY
SLIGHTLY SCORCHED



FIGURE 12. ROUND 2. DUMMIES AT 3100 ft
CROUCHING FACING DUMMY HAS
SUPPORT AND HELMET HAS DR
POSITIVE PHASE



G.Z.



FIGURE 5. ROUND 2. PRONE FACING DUMMY AT 1840 ft
NOTE HELMET WHICH REMAINED ON HEAD
DURING POSITIVE PHASE OF BLAST



GZ

FIGURE 13. ROUND 3. CHAMP AT 1860 ft.
OF DUMMY DRIVER IN WRECKA

Antler-2 (6kt) and Antler-3 (25 kt) nuclear tests: from AWRE T6/59

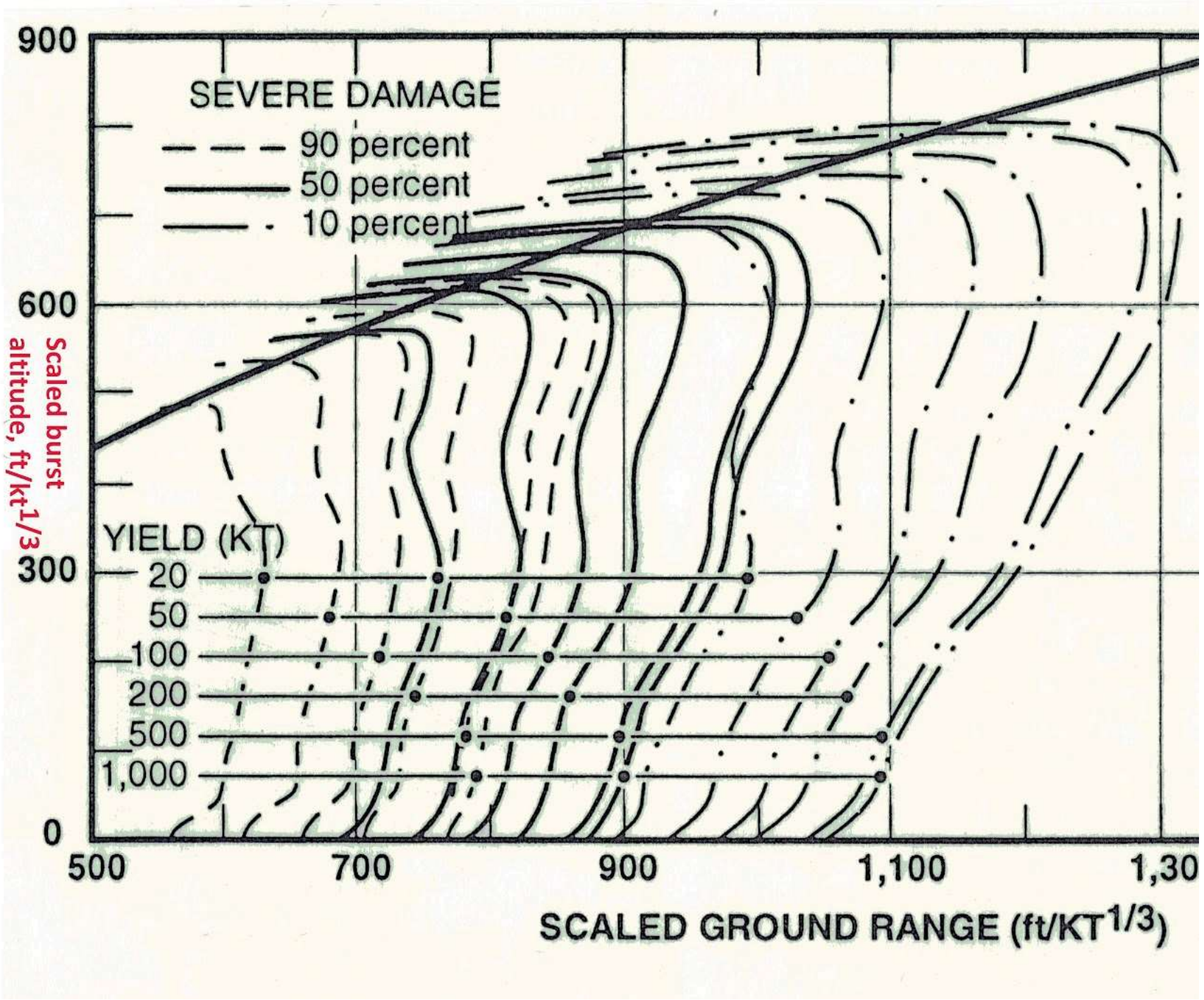
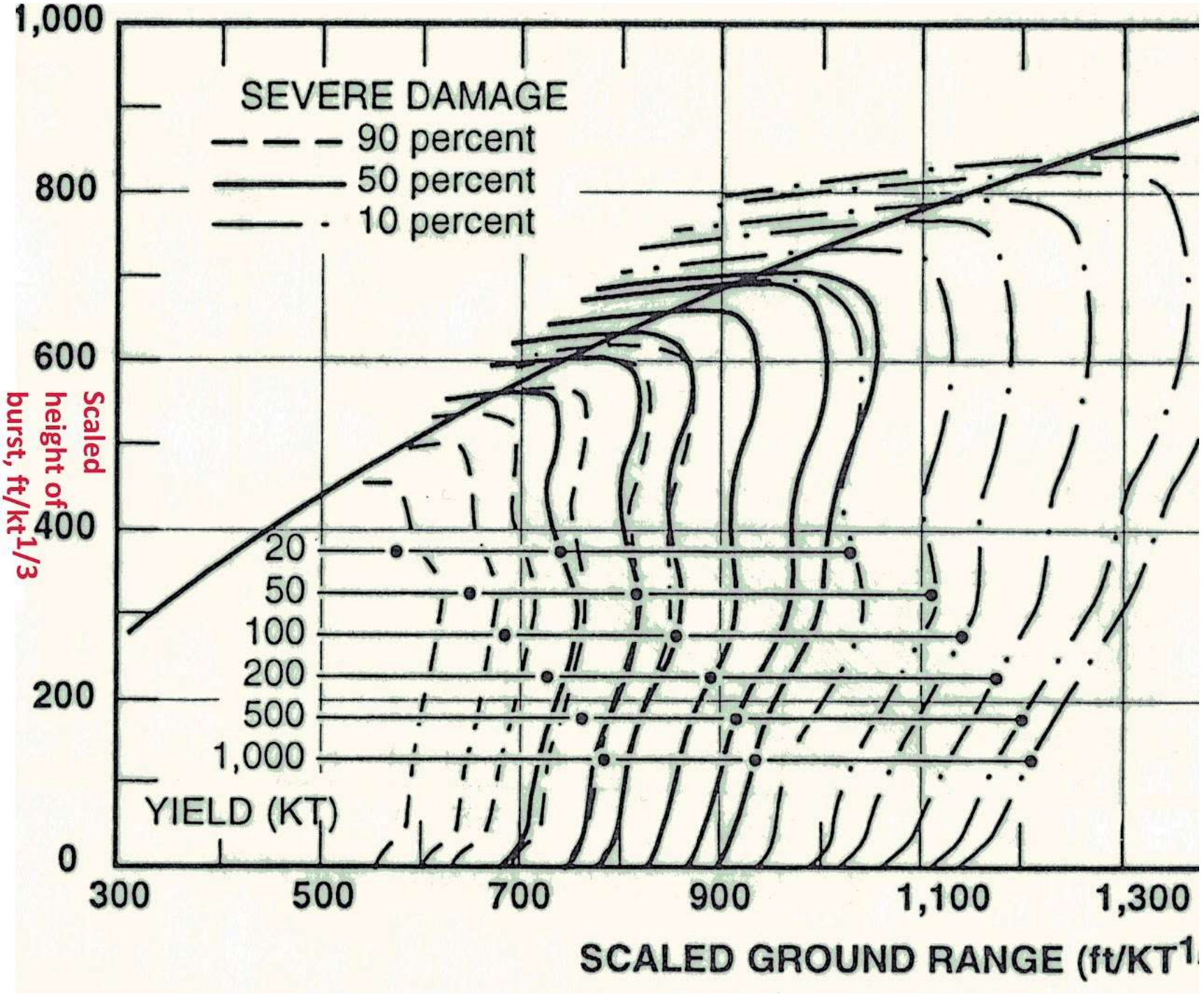

900
600
300
0
SEVERE DAMAGE
90 percent
50 percent
10 percent
YIELD (KT)
20
50
100
200
500
1,000
Scaled burst altitude, ft/kt1/3
500
700
900
1,100
1,30
SCALED GROUND RANGE (ft/KT1/3)

Figure 15.20. Moderate and Severe Isodamage Curves for
Category 15.2.12 for Yields Ranging From 20 KT to 1,00


SEVERE DAMAGE
90 percent
50 percent
10 percent
Scaled height of burst, ft/kt1/3
1,000
800
600
400
200
0
20
50
100
200
500
1,000
YIELD (KT)
300
500
700
900
1,100
1,300
SCALED GROUND RANGE (ft/KT1

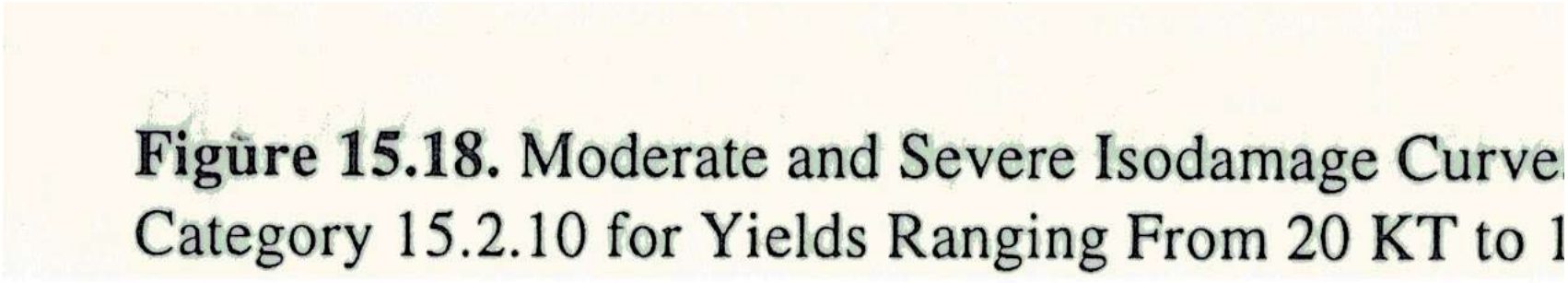


Figure 15.18. Moderate and Severe Isodamage Curve
Category 15.2.10 for Yields Ranging From 20 KT to 1

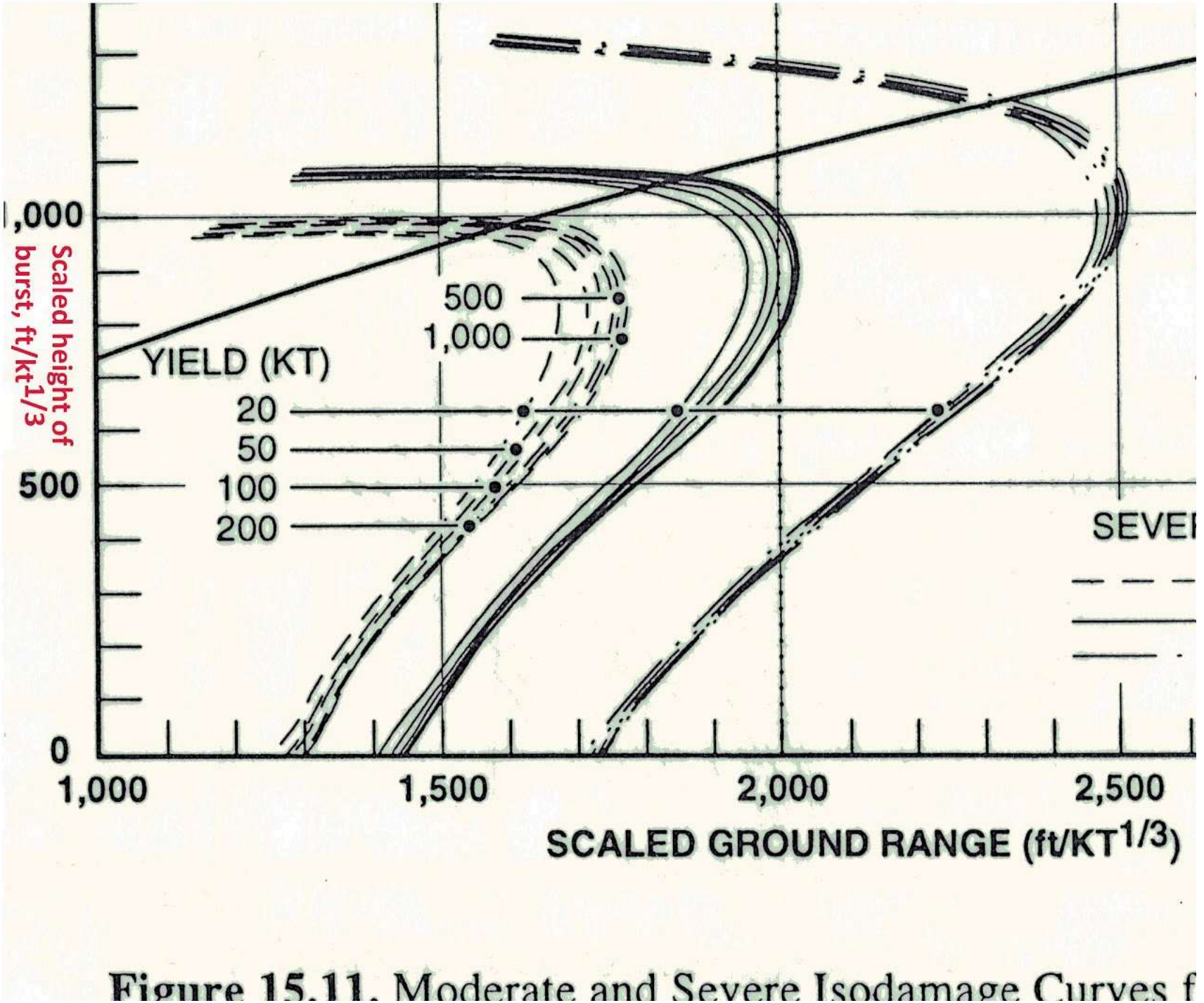


Figure 15.11. Moderate and Severe Isodamage Curves f

Category 15.2.3 for Yields Ranging From 20 KT to 1,00

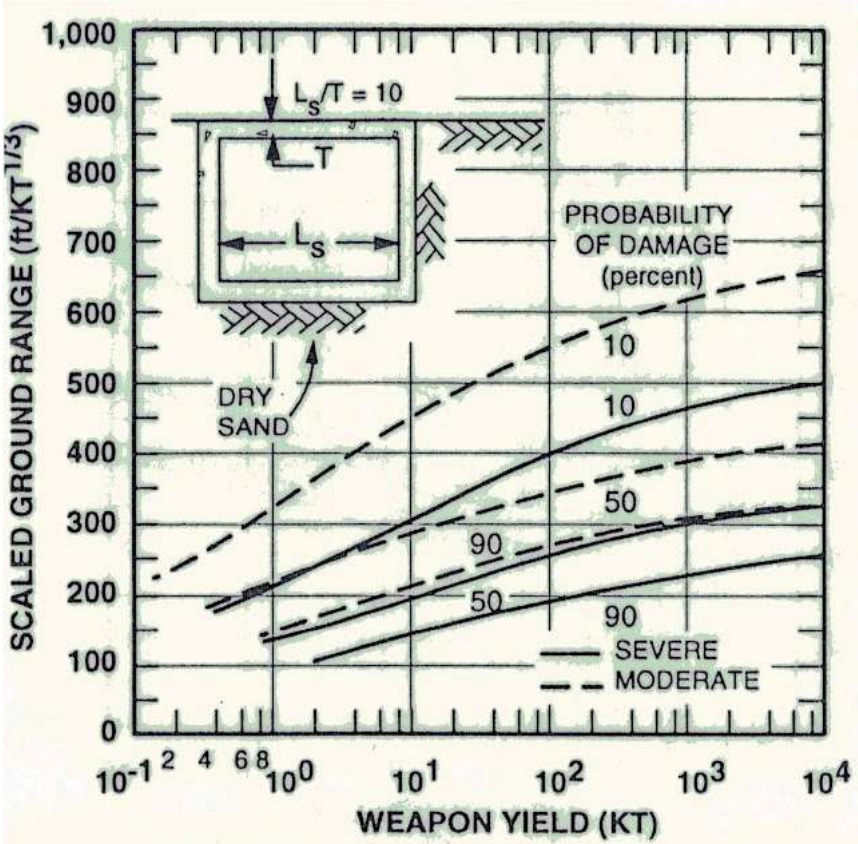


Figure 15.43. Vulnerability Curves for a Flat-Roofed Structure, Aspect Ratio $L_s/T = 10$ (Structure Category 15.3.11) Surface-Flush in Dry Sand.

Data from two underground tests of different yields, converted to surface ground shock/cratering coupling for the surface burst is 5% that for underg p552)

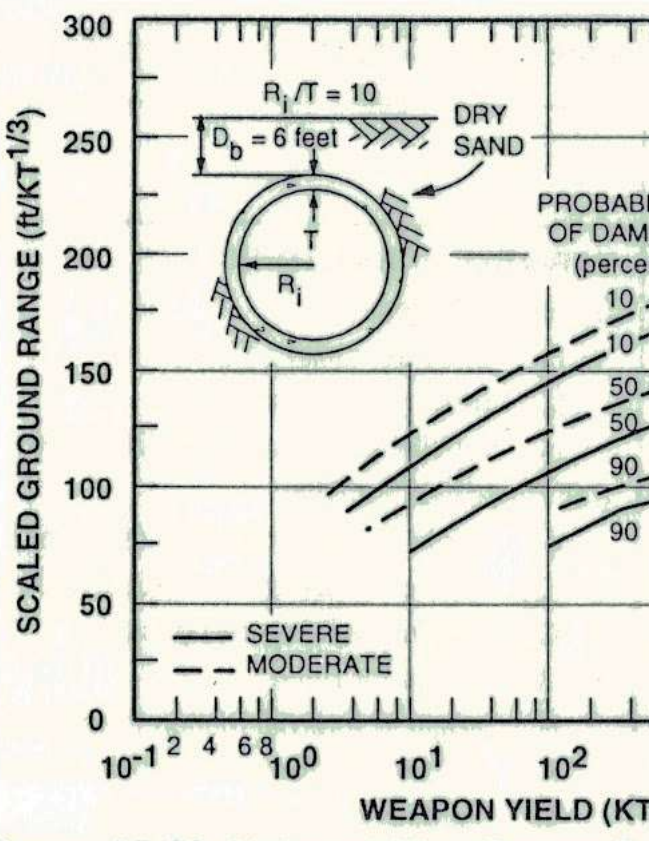
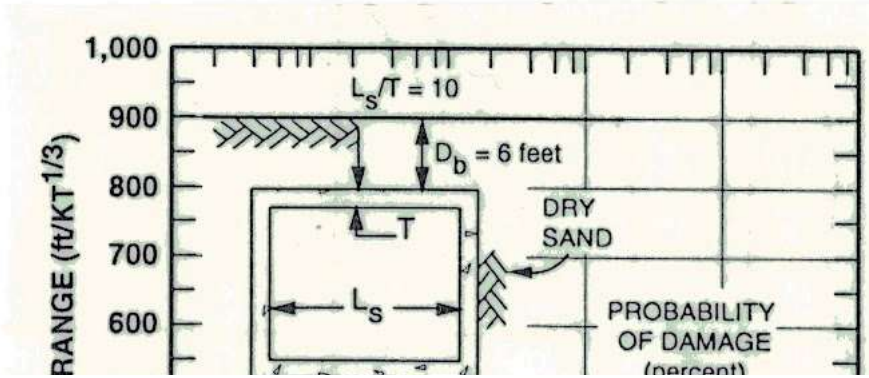
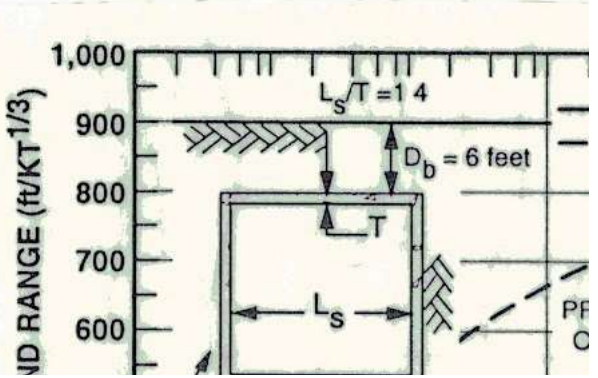


Figure 15.52. Vulnerability Curves fo Horizontal Cylinder, Aspect Ratio R_i/T (Structure Category 15.3.18) Buried in





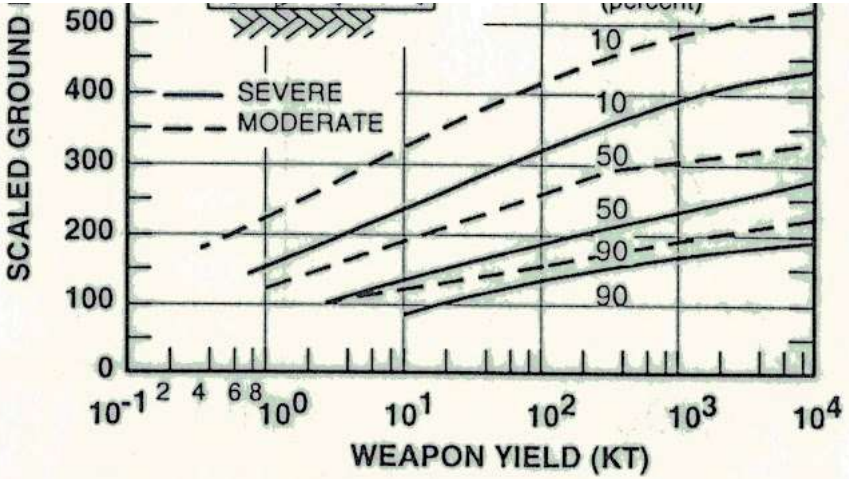


Figure 15.35. Vulnerability Curves for a Flat-Roofed Structure, Aspect Ratio $L_s/T = 10$ (Structure Category 15.3.3) Buried in Dry Sand.

bursts on the assumption that the
round bursts (Northrop, 1996,

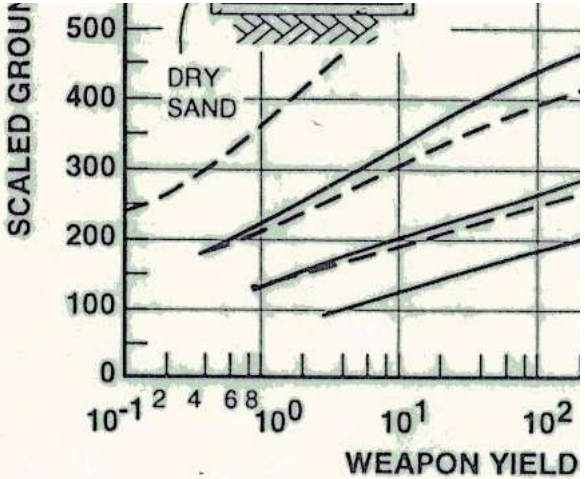
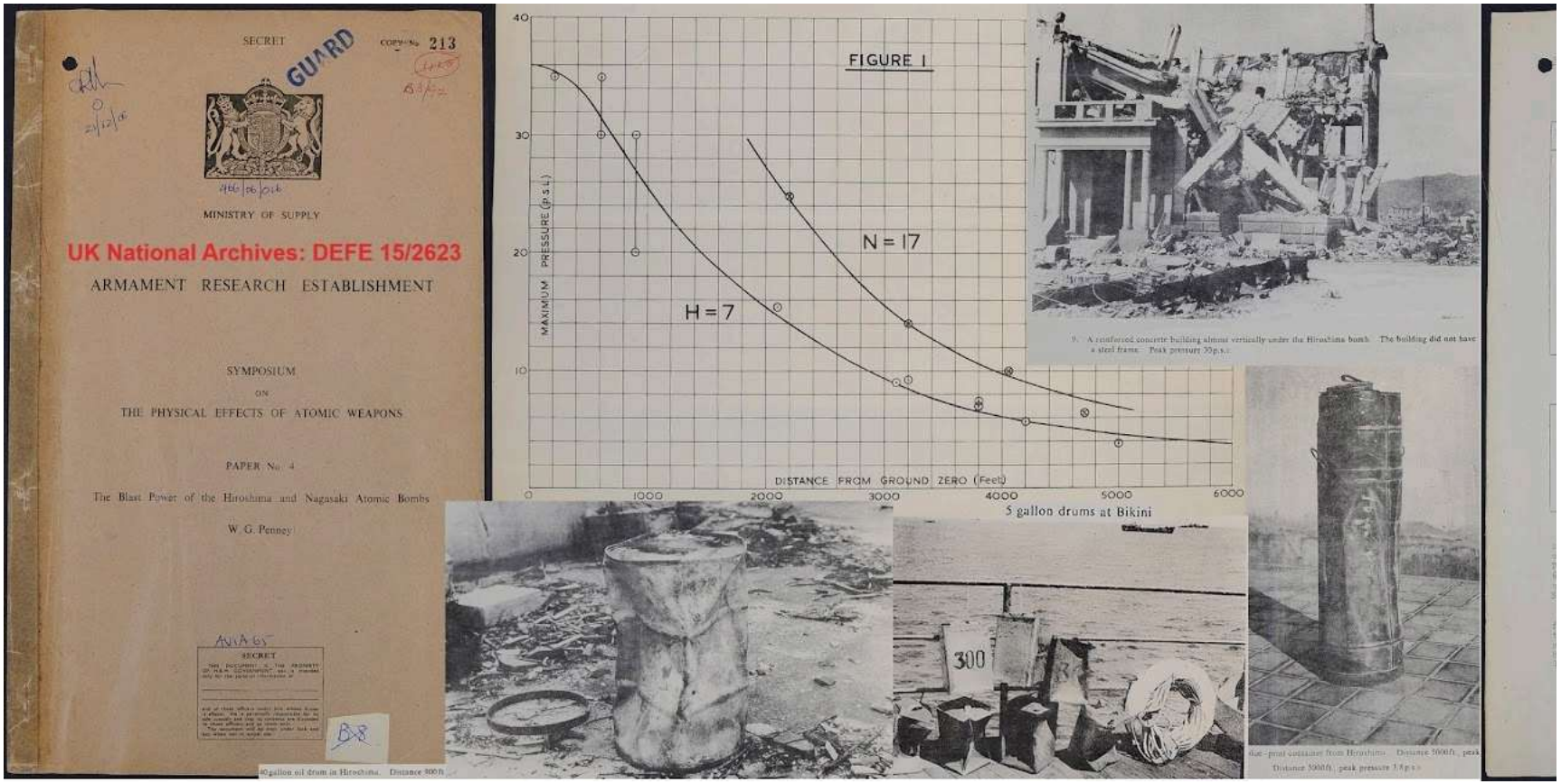


Figure 15.36. Vulnerability Curves
Roofed Structure, Aspect Ratio $L_s/$
(Structure Category 15.3.4) Buried



Above: Edward Leader-Williams on the basis for UK civil defence shelters in SECRET 1949 Royal Society's London Symposium on physical effects of atomic weapons, a study that was kept secret by the Attlee Government and subsequent UK governments, instead of being openly published to enhance public knowledge of civil defence effectiveness against nuclear attack. **Leader-Williams also produced the vital civil defence report seven years later (published below for the first time on this blog), proving civil defence sheltering and city centre evacuation is effective against 20 megaton thermonuclear weapons. Also published in the same secret symposium, which was introduced by Penney, was Penney's own Hiroshima visit analysis of the percentage volume reduction in overpressure-crushed empty petrol cans, blueprint containers, etc., which gave a blast partition yield of 7 kilotons (or 15.6 kt total yield, if taking the nuclear blast as 45% of total yield, i.e. 7/0.45 = 15.6, as done in later AWRE nuclear weapons test blast data reports). Penney in a 1970 updated paper allowed for blast reduction due to the damage done in the city bursts**.

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MINISTRY OF SUPPLY

ARMAMENT RESEARCH ESTABLISHMENT

SYMPOSIUM

ON

THE PHYSICAL EFFECTS OF ATOMIC WEAPONS

PROGRAMME

SECRET

THIS DOCUMENT IS THE PROPERTY OF H.B.M. GOVERNMENT, and is intended only for the personal information of

A SYMPOSIUM
ON
THE PHYSICAL EFFECTS OF ATOMIC W

to be held at
The Royal Institution of Great Britain
21, Albemarle St., W.1.
on
September 27 & 28, 1949

Mr.E.Leader-Williams, B.Sc., A.M.Inst.C.E. Chief Scientific
Department, Home

Because America kept the casualty rates in different kinds of and Nagasaki secret, already by 1949 the UK had used its ow

Edward Leader-Williams (co-inventor of Morrison indoor table shelter, with Lord Baker, WWII), Secret *Symposium on the Physical Effects of Atomic Weapons*, paper 5, *Civil Defence Studies*. *NOTE: the Morrison shelter was adapted in the 1982 Home Office "Domestic Nuclear Shelters - Technical Guidance" by adding a protected escape tunnel to avoid risk trapping.*

HOME OFFICE

OFFICE OF THE CHIEF SCIENTIFIC AD

CIVIL DEFENCE STUDIES

A CONTRIBUTION TO THE A.R.E. SYMP

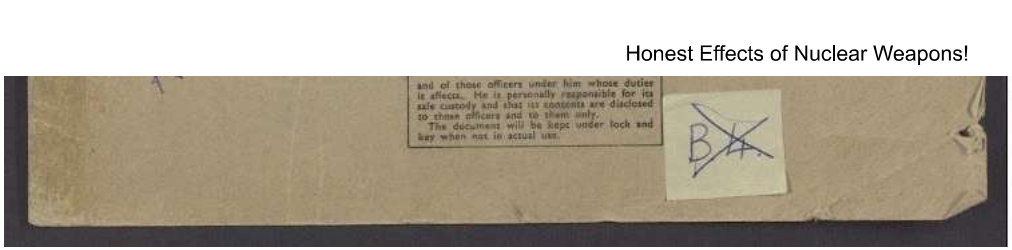
FIG. 1

Casualties in Morrison Shelters

Category of house damage	Distance estimated by the British Mission to Japan at which this category of house damage would occur from a bomb of the Nagasaki type burst at a height of ⅜ mile	Corresponding distance from a burst at ½ mile	Data	
			Number of Morrison shelter occupants	Killed
A. Totally destroyed	3000 ft.	2500 ft.	115	7%
B. So badly damaged that demolition necessary	5280 ft.	3900 ft.	22	0
C. Damaged and uninhabitable	7920 ft.	6300 ft.	6	0

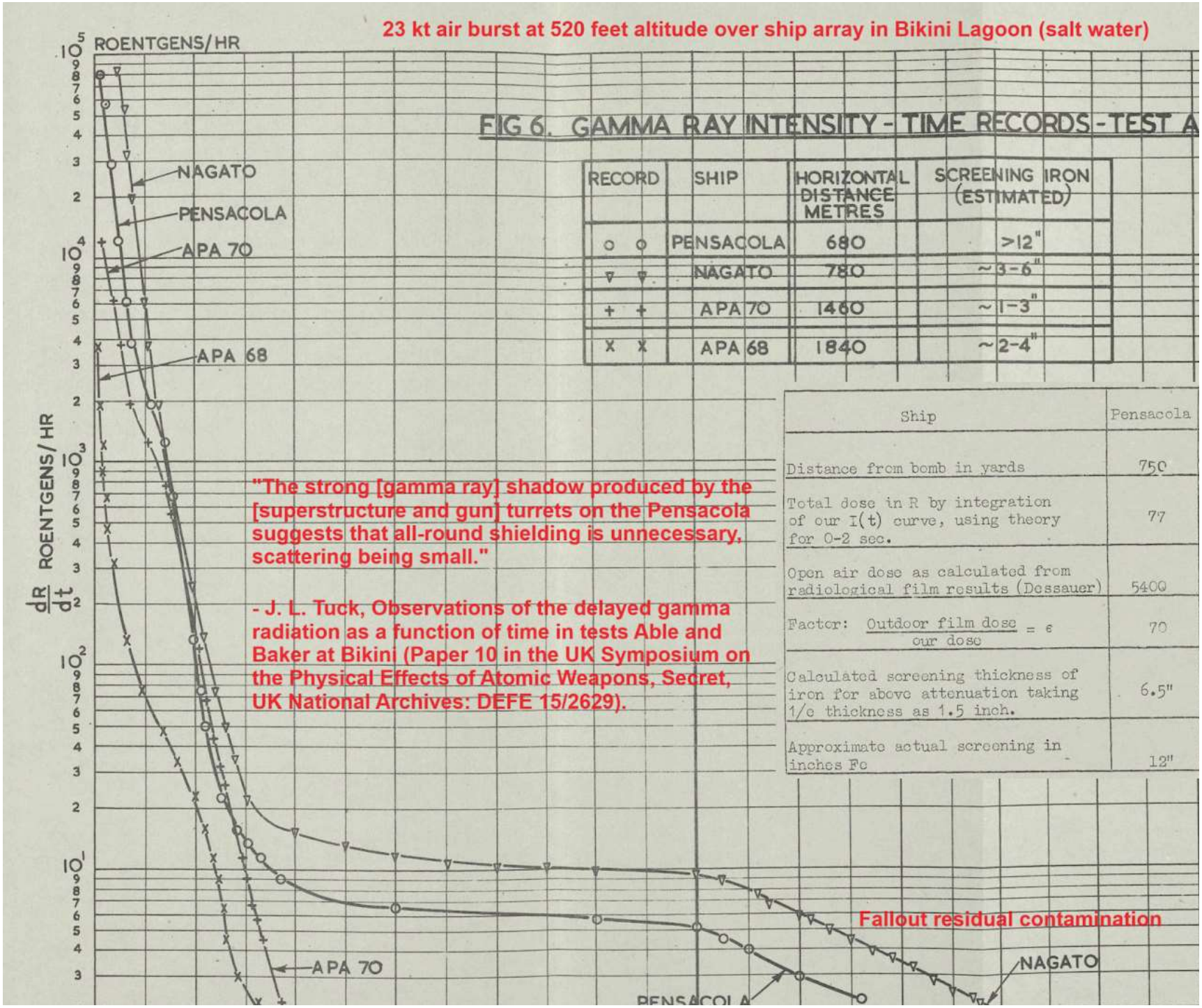
From these data it is possible to define the thickne
material, e.g. concrete, to give protection at any define
example, 2 ft. of concrete gives protection from death fr
immediately under a bomb burst at the Japanese height.
bursts over a city, particularly if the burst is fairly l
for the present study, the shielding of intervening build
and the bomb will help in reducing radiation casualties.
assess the quantitative importance of this shielding, a v
made of a sample area in London. Shelters were assumed
protection from flash burn is provided by even comparati
curtains, etc., and in the conditions of this study wher
to be in houses or shelters, no flash burn casualties ha

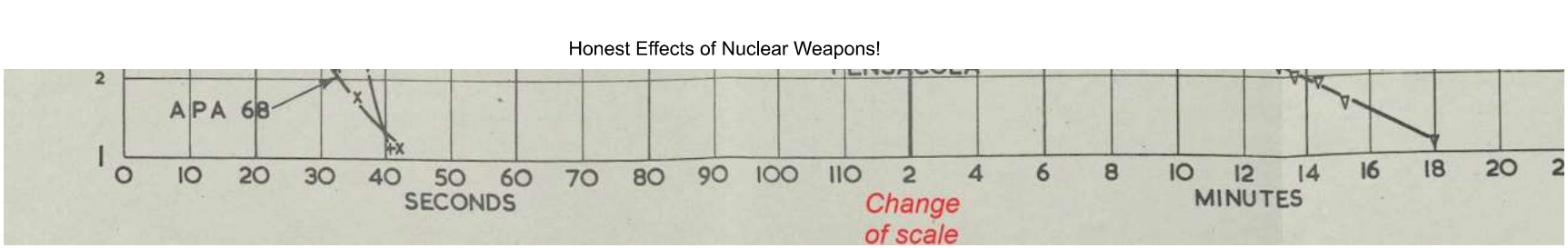
The high proportion of these delayed deaths among Anderson s
is, of course, due to the fact that the Anderson shelter, as it s
not provide a balanced design against the atomic bomb; it is bet
blast than it is against gamma radiation. However, it should be
simple matter to increase the gamma radiation protection by provi
increased thickness of earth cover, and with this provision the A


and of those officers under him whose duties it affects. He is personally responsible for its safe custody and that its contents are disclosed to those officers and to them only.
The document will be kept under lock and key when not in actual use.

B/A.

be at least as good as the Grade A surface shelter.
which the figures for complete rescue are based, would clearly
after an atomic incident. The figures do show, however, that ev
of the Anderson or brick surface type provide a substantial meas
protection against the atomic bomb, reducing both the killed and
about ⅓rd of what they would be among people in houses. The str
brick surface shelter is even better, reducing the figures to abo
of those for houses.

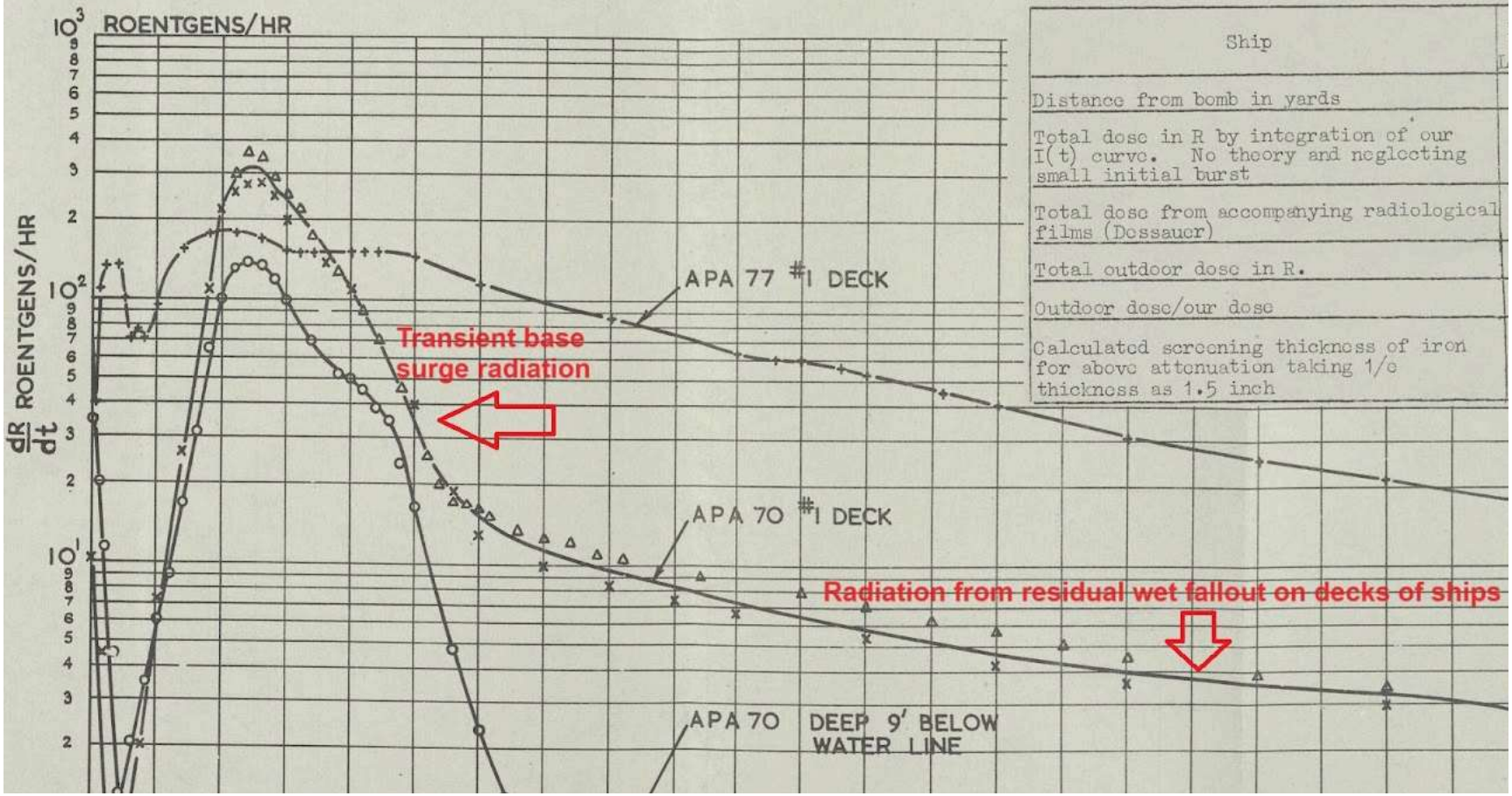

23 kt air burst at 520 feet altitude over ship array in Bikini Lagoon (salt water)
ROENTGENS/HR
FIG 6. GAMMA RAY INTENSITY - TIME RECORDS - TEST A
NAGATO
PENSACOLA
APA 70
APA 68
RECORD | SHIP | HORIZONTAL DISTANCE METRES | SCREENING IRON (ESTIMATED)
o o | PENSACOLA | 680 | >12"
▽ ▽ | NAGATO | 780 | ~3-6"
+ + | APA 70 | 1460 | ~1-3"
X X | APA 68 | 1840 | ~2-4"
Ship | Pensacola
Distance from bomb in yards | 750
Total dose in R by integration of our I(t) curve, using theory for 0-2 sec. | 77
Open air dose as calculated from radiological film results (Dessauer) | 5400
Factor: Outdoor film dose / our dose = e | 70
Calculated screening thickness of iron for above attenuation taking 1/e thickness as 1.5 inch. | 6.5"
Approximate actual screening in inches Fe | 12"
"The strong [gamma ray] shadow produced by the [superstructure and gun] turrets on the Pensacola suggests that all-round shielding is unnecessary, scattering being small."
- J. L. Tuck, Observations of the delayed gamma radiation as a function of time in tests Able and Baker at Bikini (Paper 10 in the UK Symposium on the Physical Effects of Atomic Weapons, Secret, UK National Archives: DEFE 15/2629).
Fallout residual contamination
APA 70
NAGATO
PENSACOLA

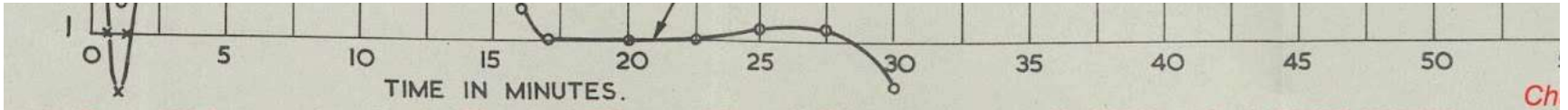

2
APA 68
1
0 10 20 30 40 50 60 70 80 90 100 110 2 4 6 8 10 12 14 16 18 20
SECONDS
MINUTES
Change
of scale

23 kt burst at 90 feet underwater in 180 feet deep Bikini Lagoon (sea water)

FIG 7. GAMMA RAY INTENSITY -TIME RECORDS - TEST BAKER.

RECORD	SHIP	HORIZONTAL DISTANCE	SCREENING IRON (ESTIMATED)	LOCATION IN SHIP	
		(METRES)			
+ +	APA 77 CRITTENDEN	1370	1½"	# 1 DECK FORWARD TROOP HEAD	SPECIAL CHAMBER
× ×	APA 70 (CARTERET)	2740	1½"	# 1 DECK FORWARD TROOP HEAD TWIN INSTALLATION	× × SPECIAL CHAMBER
△ △	"	"	"	" "	△ △ NORMAL CHAMBER
○ ○	APA 70 (CARTERET)	2740	3/8 HORIZONTAL + SEAWATER	FORWARD STORES 9' BELOW WATER LINE	NORMAL CHAMBER





J. L. Tuck, UK Symposium on the Physical Effects of Atomic Weapons, paper 10, UK Nat. Arch. DEFE 15/2629

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MINISTRY OF SUPPLY

ARMAMENT RESEARCH ESTABLISHMENT

SYMPOSIUM

ON

THE PHYSICAL EFFECTS OF ATOMIC WEAPONS

PAPER No. 10

Observations of the Delayed Gamma Radiation as a function of time in Tests ABLE and BAKER at BIKINI

J. L. Tuck

W/1A65

Observations of the Delayed Gamma

as a Function of Time in Tests ABLE and

J.L. Tuck

Summary

The intensity of gamma radiation in test measured by an ionization chamber recording from one second to several hours after the ex points throughout the ship array.

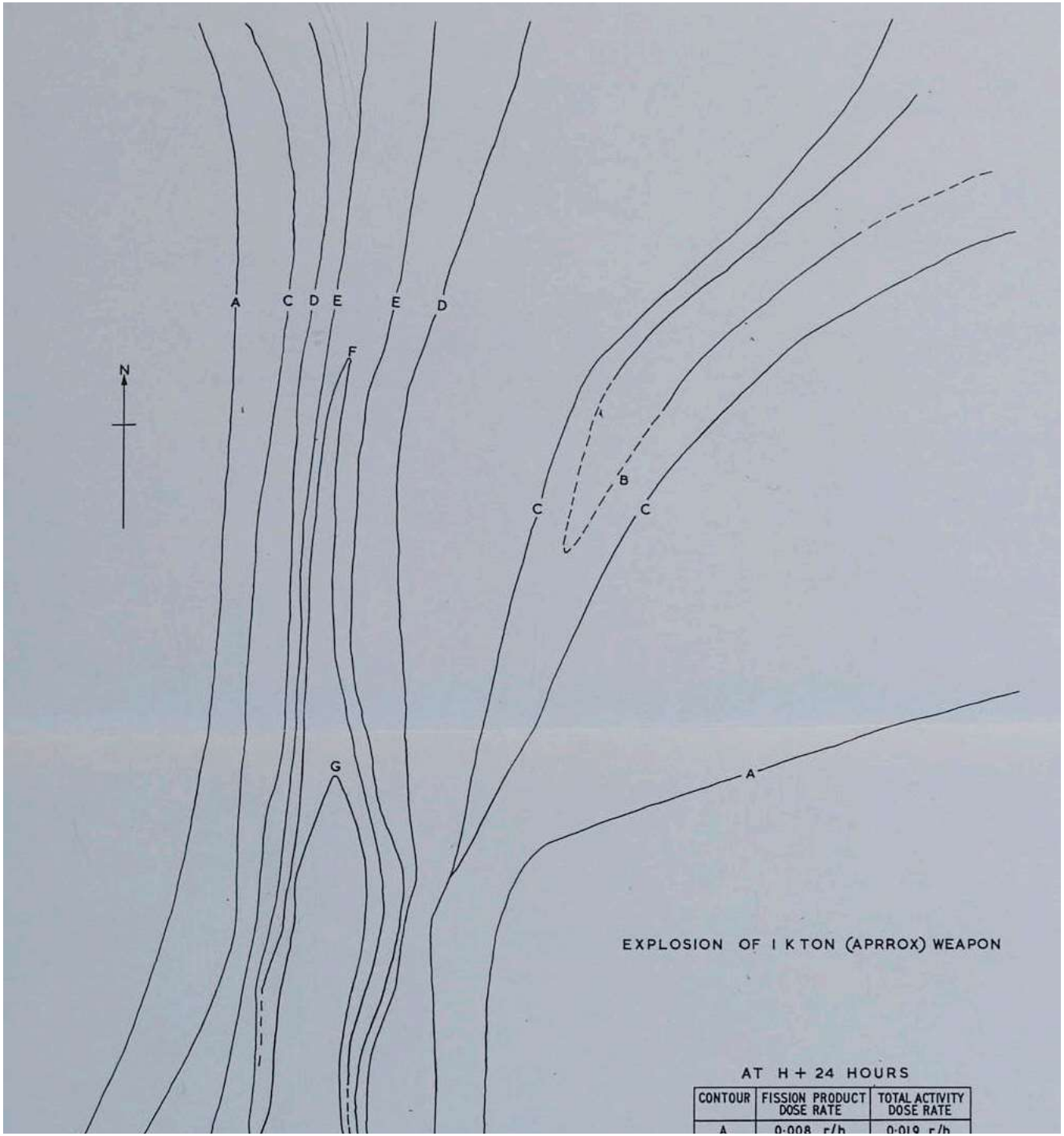
In the air shot the gamma rays came as a off at a rate such that half the total dose w second. This observed variation of gamma ra compatible with a hypothesis that most of the the ball of fire, emitting delayed gamma rays the laboratory. Intensity after the first m of the low residual contamination.

In the underwater shot the initial burst the main part of the dose being received duri intensity attributable to the return of fissi of the ships as rain and mist. In this case from 8 to 20 minutes. A high degree of loca

Estimates of gamma dose were found to ag estimates made by the radiological group from

Tactically the dosage rates are such tha exposed personnel could benefit by prompt dod in a BAKER type attack, personnel would have ships with steam up could reduce the dose by


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B.T.4


A
C
D
E
E
D
F
N
C
B
C
A
G
EXPLOSION OF 1 K TON (APRROX) WEAPON
AT H + 24 HOURS
CONTOUR
FISSION PRODUCT DOSE RATE
TOTAL ACTIVITY DOSE RATE
A
0·008 r/h
0·019 r/h

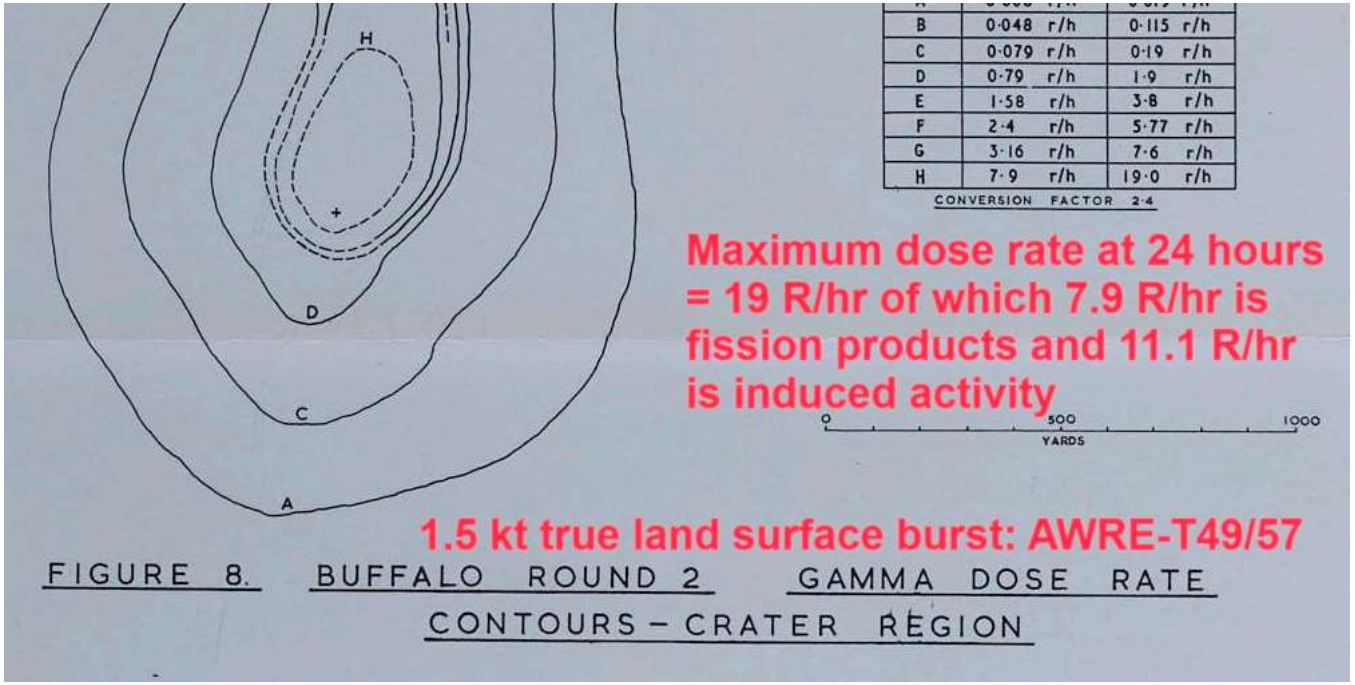
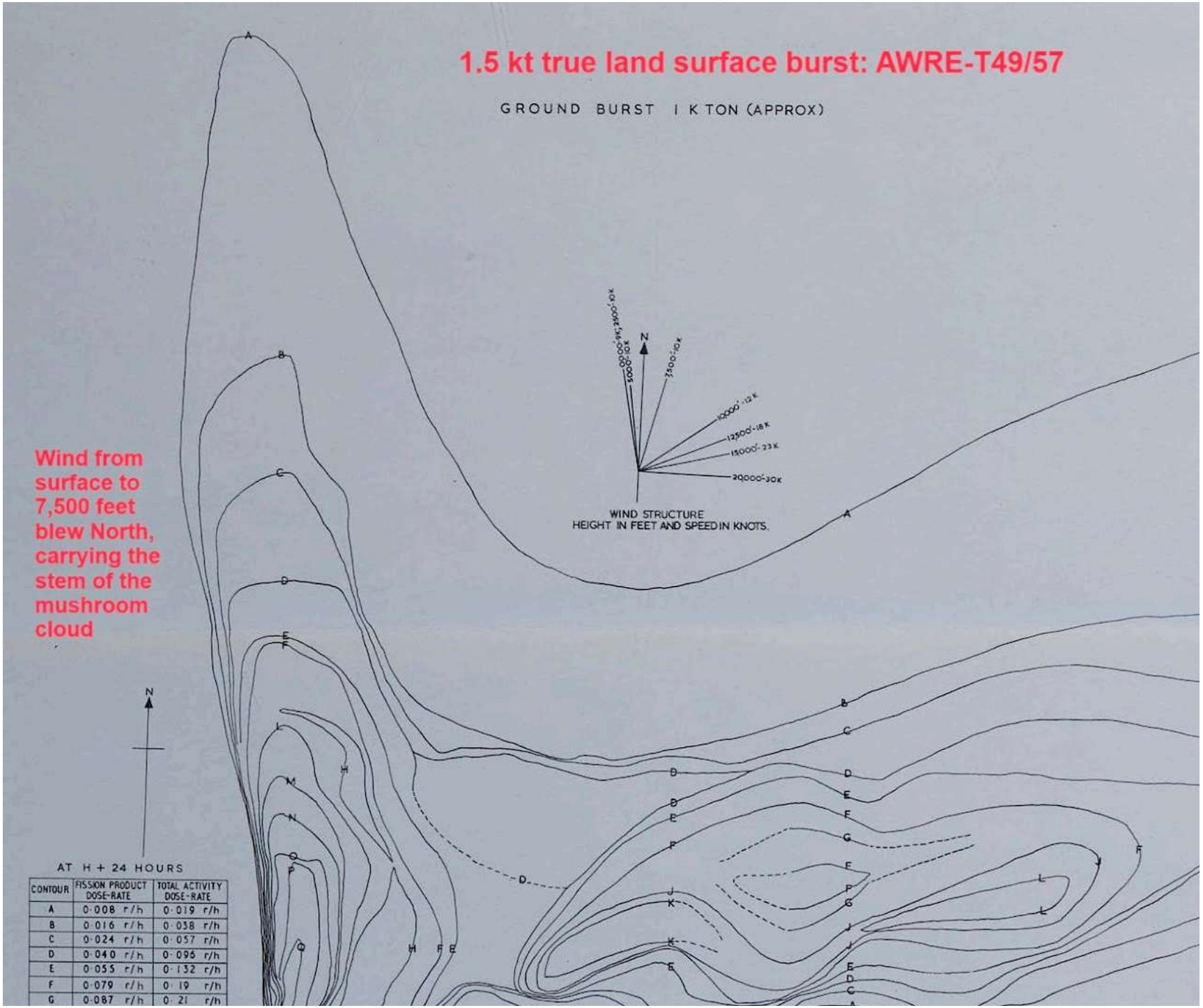


FIGURE 8. BUFFALO ROUND 2 GAMMA DOSE RATE CONTOURS – CRATER REGION

1.5 kt true land surface burst: AWRE-T49/57



CONTOUR	FISSION PRODUCT DOSE-RATE	TOTAL ACTIVITY DOSE-RATE
A	0·008 r/h	0·019 r/h
B	0·016 r/h	0·038 r/h
C	0·024 r/h	0·057 r/h
D	0·040 r/h	0·096 r/h
E	0·055 r/h	0·132 r/h
F	0·079 r/h	0·19 r/h
G	0·087 r/h	0·21 r/h

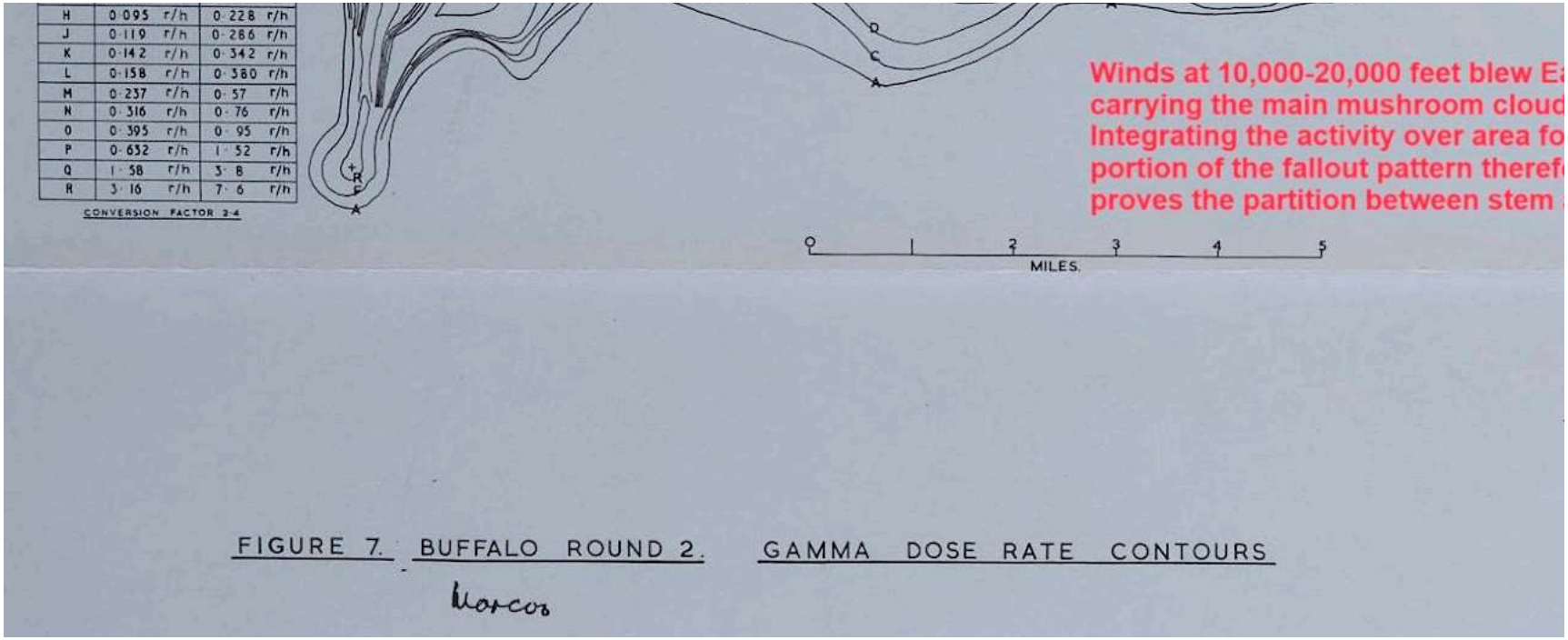
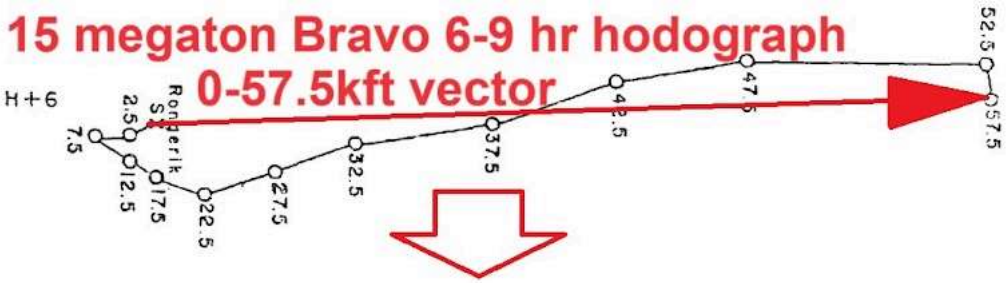
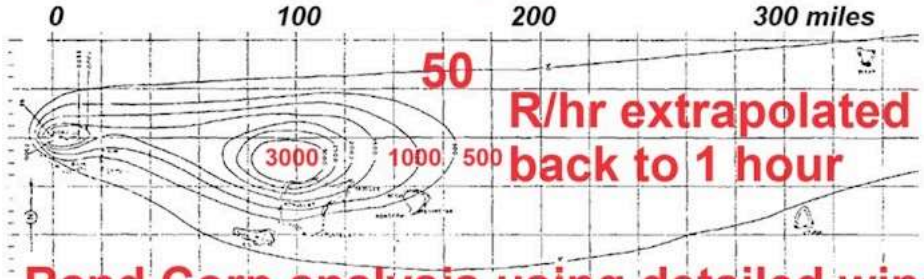


FIGURE 7. BUFFALO ROUND 2. GAMMA DOSE RATE CONTOURS

Marcos

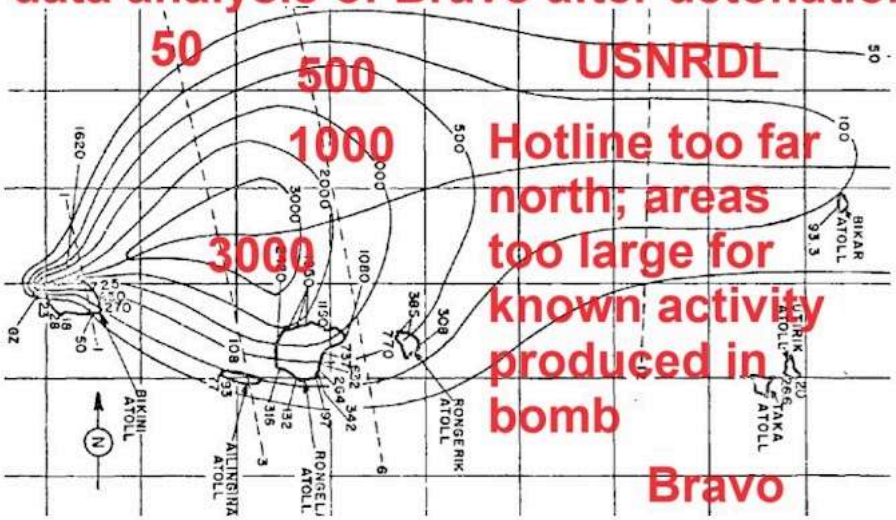
15 megaton Bravo 6-9 hr hodograph
0-57.5kft vector





50 R/hr extrapolated back to 1 hour

Rand Corp analysis using detailed wind data analysis of Bravo after detonation

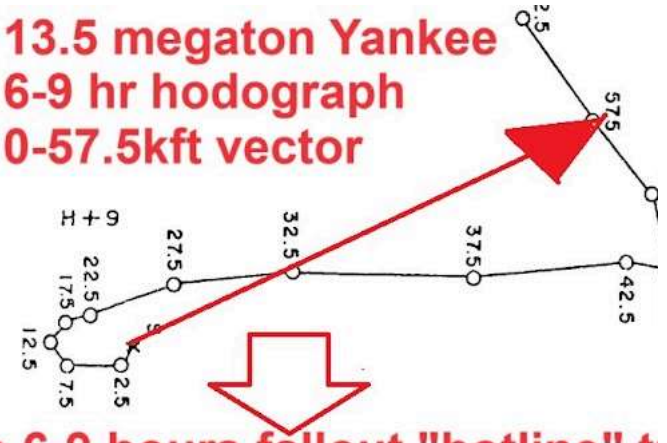


USNRDL

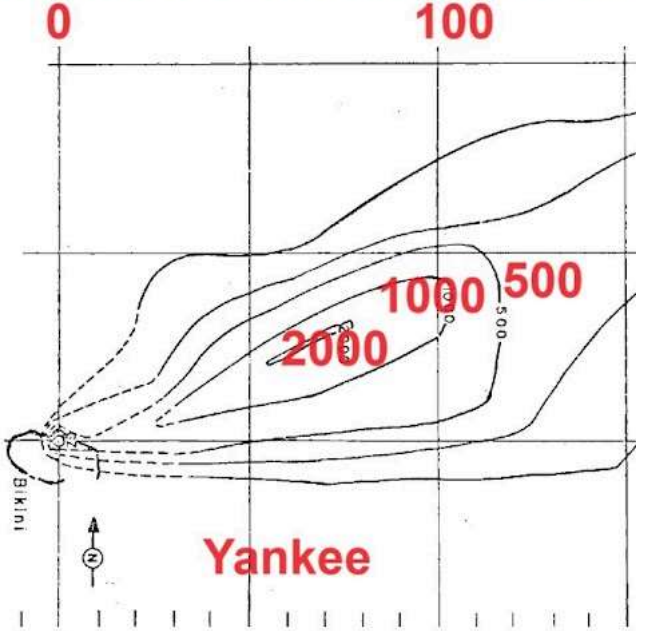
Hotline too far north; areas too large for known activity produced in bomb

Bravo

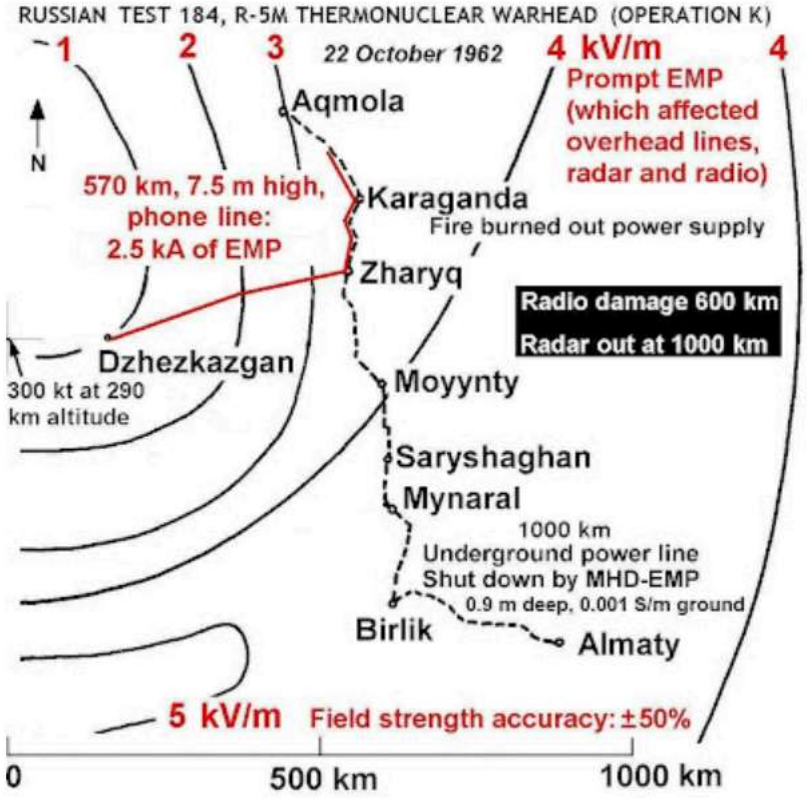
13.5 megaton Yankee
6-9 hr hodograph
0-57.5kft vector



The 6-9 hours fallout "hotline" t
corresponds to the net 6-9 hour

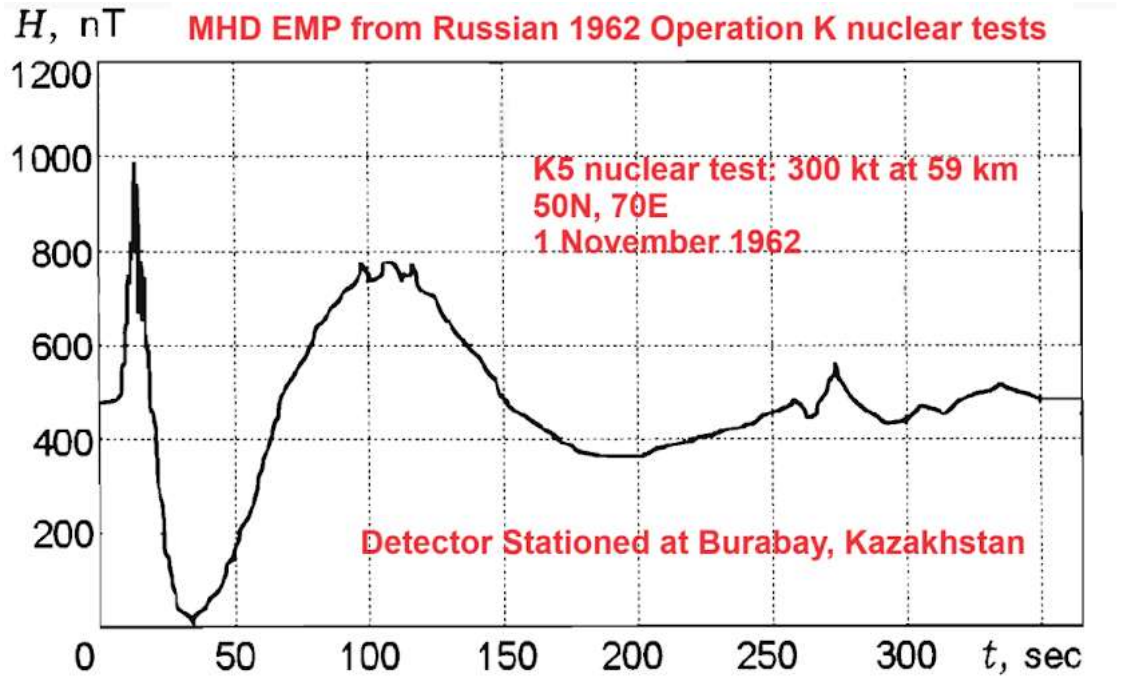


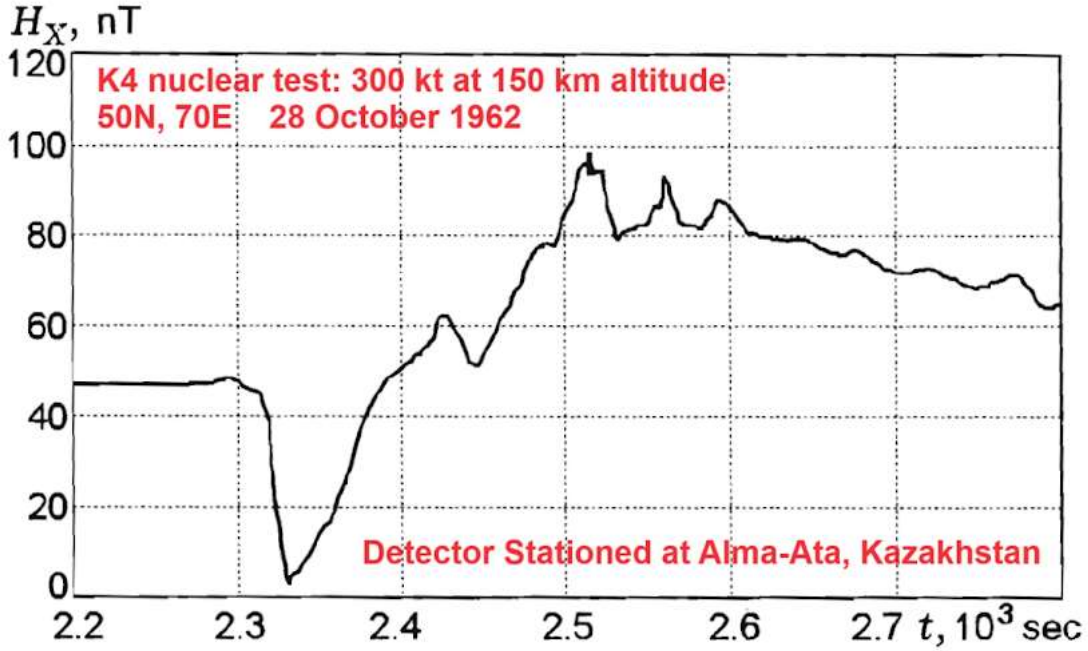
Yankee



Source:
https://glasstone.blogspot.com/2009/02/how-emp-turned-off-1-3-of-streetlamps.html

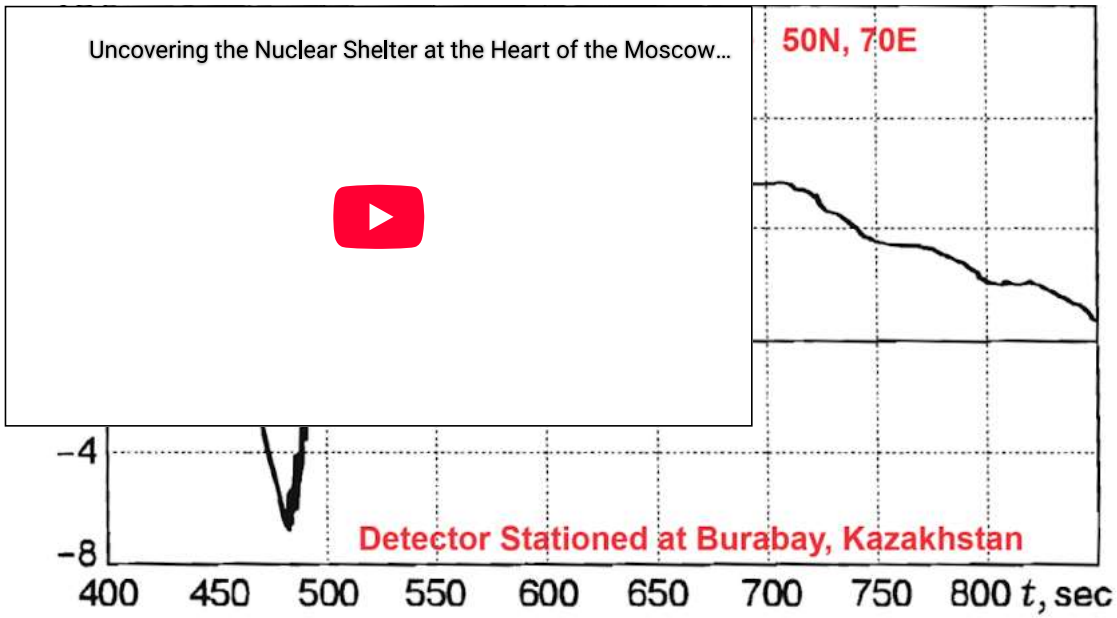
Above: *USSR Test '184' on 22 October 1962, 'Operation K' (ABM System A proof tests) 300-kt burst at 290-km altitude near Dzhezkazgan. Prompt gamma ray-produced EMP induced a current of 2,500 amps measured by spark gaps in a 570-km stretch of 500 ohm impedance overhead telephone line to Zharyq, blowing all the protective fuses. The late-time MHD-EMP was of low enough frequency to enable it to penetrate the 90 cm into the ground, overloading a shallow buried lead and steel tape-protected 1,000-km long power cable between Aqmola and Almaty, firing circuit breakers and setting the Karaganda power plant on fire.*


H, nT
MHD EMP from Russian 1962 Operation K nuclear tests
1200
1000
800
600
400
200
0
50
100
150
200
250
300
t, sec
K5 nuclear test: 300 kt at 59 km
50N, 70E
1 November 1962
Detector Stationed at Burabay, Kazakhstan


H_X, nT
120
100
80
60
40
20
0
2.2
2.3
2.4
2.5
2.6
2.7 $t, 10^3$ sec
K4 nuclear test: 300 kt at 150 km altitude
50N, 70E 28 October 1962
Detector Stationed at Alma-Ata, Kazakhstan


H_X, nT

Uncovering the Nuclear Shelter at the Heart of the Moscow...

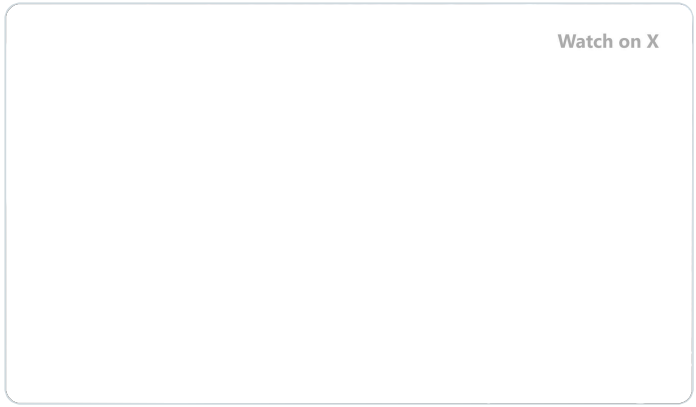


SOURCE: Sarov physicists in *Fizika. Goreniya I Vzryva*, v40, n6, p31

Правительственные бункеры Москвы — лекция Дмитр...

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Russian propagandists are discussing the best way to scare the West - testing a nuclear Tsar Bomb or checking bomb shelters.



4:43 PM · Oct 4, 2023

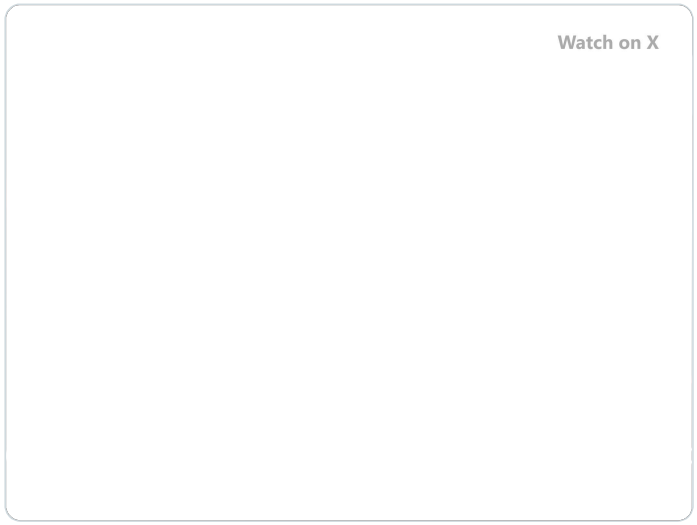
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Nuclear saber-rattling from Russian propagandists. They think tactical nuclear weapons aren't enough, and strategic ones should be used.

Russia has been very active with its nuclear rhetoric recently.



5:34 PM · Sep 29, 2023

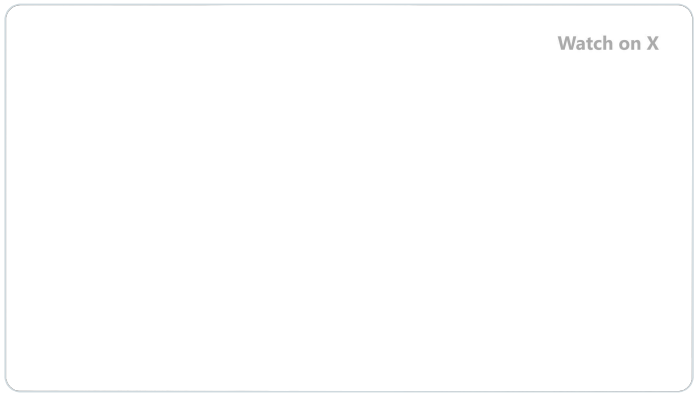
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nukegate.org
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Review of Peter Kuran's excellent "Neutron Bomb Movie".

Below is a brief clip for review purposes from a longer newsreel of President Eisenhower, enthusiastically promoting the 96% clean fusion Poplar nuclear test (detonated 12 July 1958). On 30 October 1962, Kennedy tested Show more



11:22 PM · Sep 29, 2023

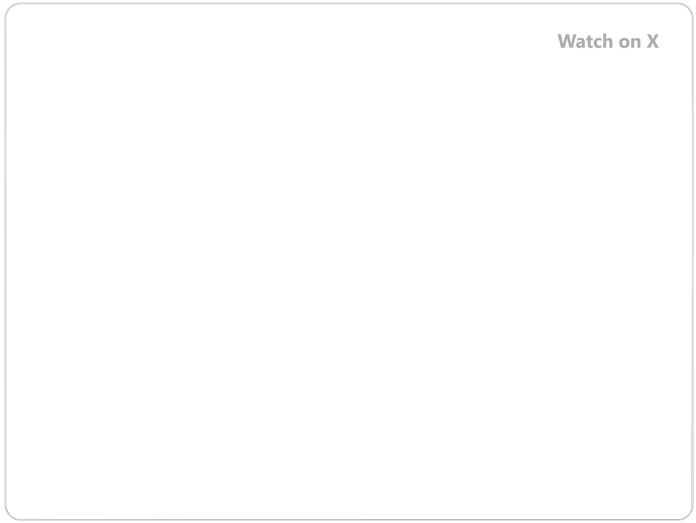
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Attention, Great Britain!

Threats to blow up British nuclear facilities from a Russian propagandist.



5:28 PM · Sep 13, 2023

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EMP in 19 September 1963 US Congressional Record SENATE

Report submitted by Senator Barry Goldwater duri

Mr. President, I ask unanimous consent that the first 7 pages of the introduction to a paper prepared by Dr. V. W. Vodicka, technical director, Joslyn Electronic Systems Division, and John A. Kuypers, of Stanford University, may be printed in the RECORD following my remarks.

There being no objection, the excerpt was ordered to be printed in the RECORD, as follows:

The immediate electromagnetic effects of an atomic explosion are massive and diverse. These effects can wipe out critical weapons and communications systems in a few seconds time although the same facilities may survive in the so-called conventional part of the attack environment.

There is more to a nuclear explosion than a spectacular visual display, ground and atmospheric shock waves, heat, and atomic radiation. These are only part of the nuclear attack environment.

Some of the electromagnetic effects (viz., Argus) are trans-hemispheric. All are re-

Nuclear electromagnetic effects have been noted since the advent of nuclear explosion testing. Overwhelming verification of their existence and scope has been built up by correlation of shot times (most accurately defined in foreign technical papers) with concurrent working system outages and damages. This correlation effort by the authors began in 1952 with notations of electromagnetic effects in the vicinity (200 mile radius) of the test grounds.

In August 1958 the Argus test series in the South Atlantic Ocean caused dramatic and unpredicted transhemispheric electromagnetic disturbances. A low-yield shot at 200 miles altitude caused the undersea coaxial cable across the North Atlantic Ocean to intermittently fail in function. Correlated outages existed in critical defense systems at this time but were not published due to classification of facilities logs.

Soviet instrumentation of our test efforts defined our shot times to the second. The times were published in unclassified technical papers.

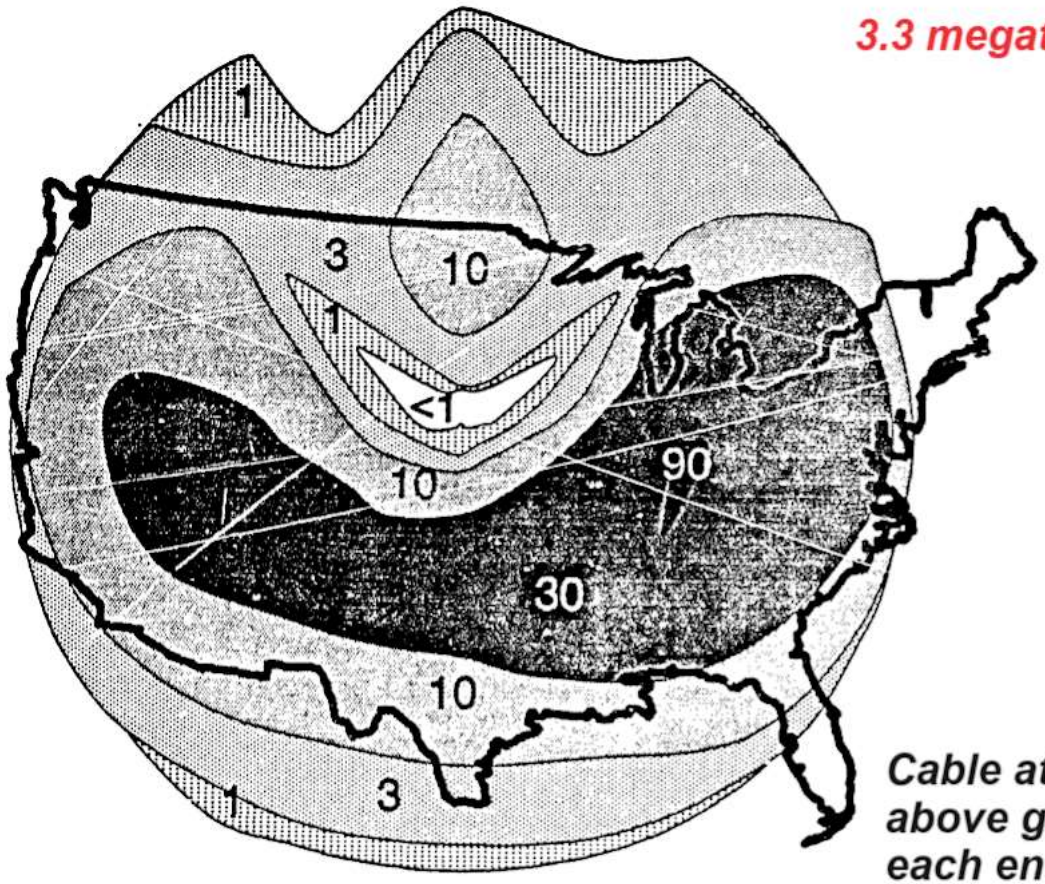
Many tactical and strategic weapons, communications, and command systems are not hard electrically. These systems as now implemented may not survive electronically to the same degree that they will survive mechanically. Catastrophic electrical and electronic failures can be expected in most military facilities which are combined with commercial facilities as now installed to a radius from ground zero as follows if not properly protected:

	Miles
1 MT fusion, low altitude	20
10 MT fusion, low altitude	72
50 MT fusion, low altitude	120

The catastrophic failures are defined as: Vaporization and explosion of electrical conductors (power distribution and communications), equipment component burn out (especially solid state devices) and massive insulation failures due to both conductor overheating and electrical stress (over voltage) and ionization of dielectric.

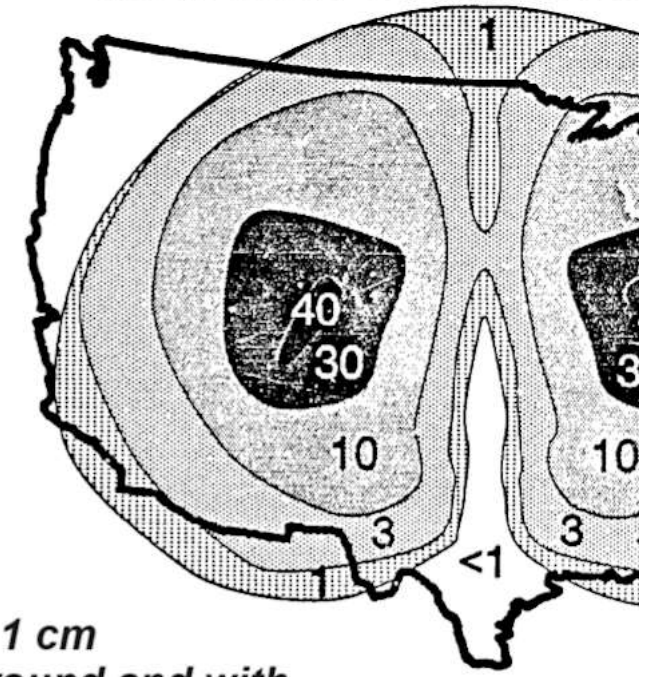
Lesser systems failures can be expected outside of the radii specified above. Both calculations and actual experience show that

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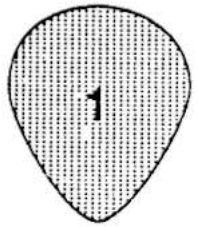


3.3 megaton yield, 400 km over USA

North-South orientated 100



Cable at 1 cm above ground and with each end grounded via a 500 ohm resistor



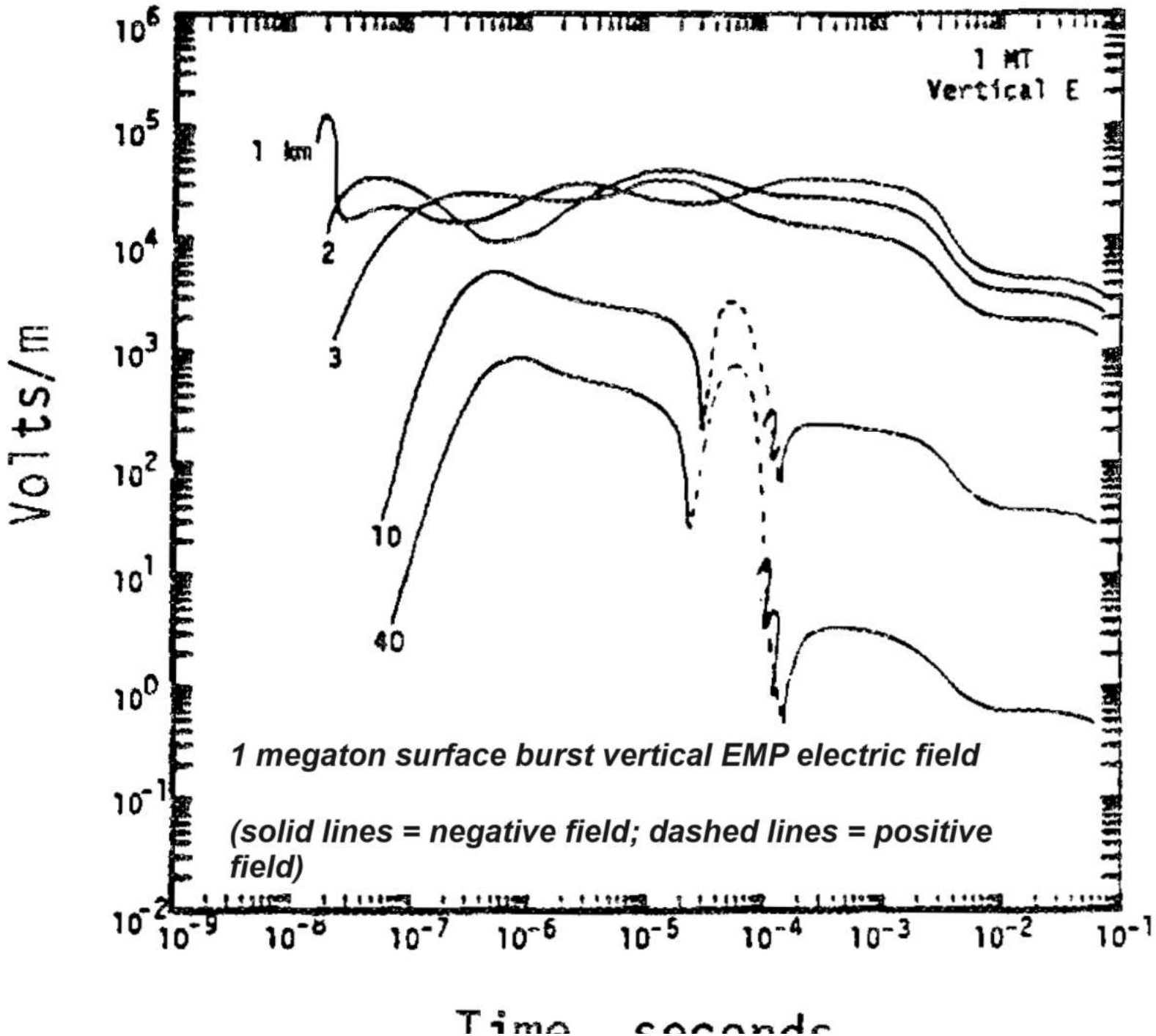
East-West orientated cables

EMP induced in cables from high altitude burst

100 m long cable, energy coupled in mJ

Robert H. Vandre, Janis Klebers, Frederick M. Tesche, and Janie P. Blanchard, repo

This study found that 65% of modern medical electronic equipment failed after 10 r

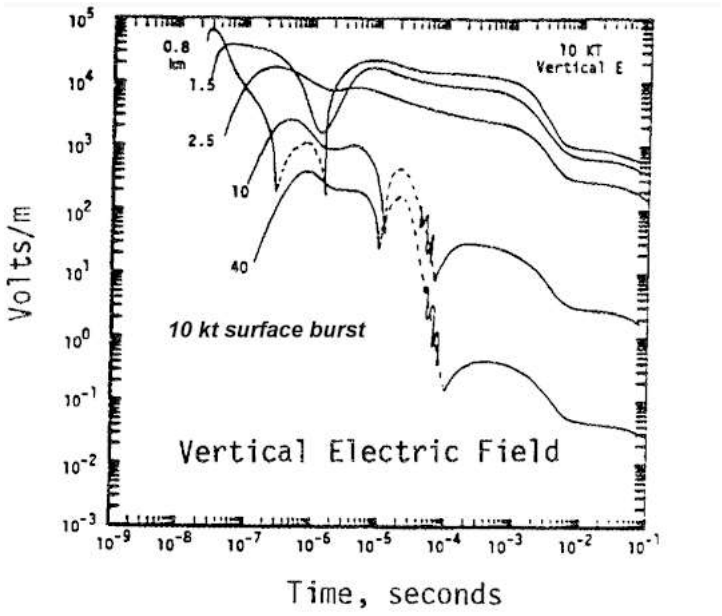


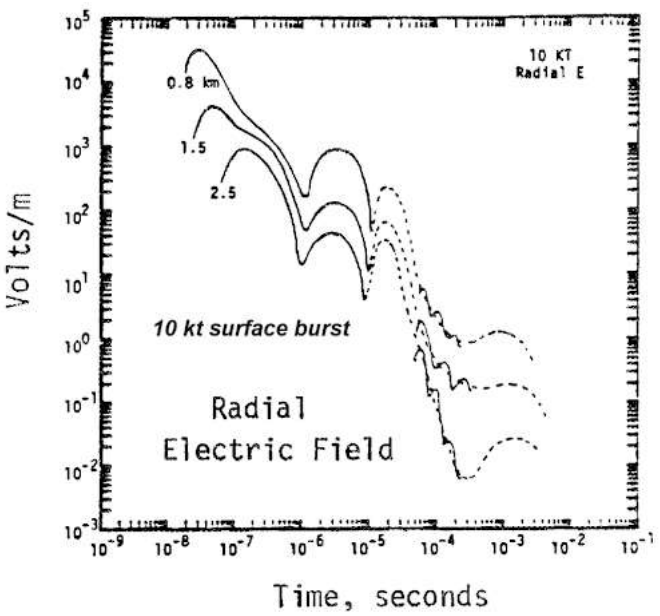
1 megaton surface burst vertical EMP electric field

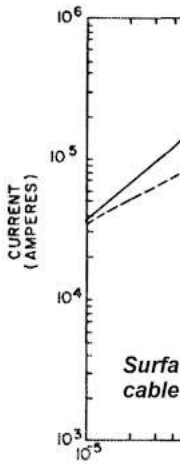
(solid lines = negative field; dashed lines = positive field)

Time, seconds

SOURCE: C. L. Longmire, "History and Physics of EMP," presentation at the Fourth NEM Symposium, Baltimore, Maryland, July 2, 1984.







SOURCE: Long of EMP Couplin Nuclear Agency

SOURCE: C. L. Longmire, "History and Physics of EMP," presentation at the Fourth NEM Symposium, Baltimore, Maryland, July 2, 1984.

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COMMUNICATIONS

EFFECT OF ELECTRO-MAGNETIC PULSE

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PRESERVE		
CONSIDER AT 1st 2nd REVIEW		

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1.
2.
3.

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NOTE: This is summary of B. J. S report of 30 April 1961, "Electrom Effects from Nuclear Tests", DAS E.G.G. report L-523 (68 pages), SECRET

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Some Observations of Electro resulting from Nuclear Explo

The information presented below has nuclear weapon tests, when instrumentation effects, and is therefore mainly empirical. electro-magnetic radiation can cause severe all kinds of electrical systems.

Electro-magnetic radiation from a wea radio frequencies and can induce large volt circuits, even when they are remote from th and communication and power lines represent signals are induced by the radiation and ar can occur many miles from the explosion.

The examples quoted here are limited of Edgerton, Germeshausen and Grier during charts summarize damage under the categorie

1) Damage to Signals Systems

2) Damage to Power Systems

3) Damage to Systems using Earthing and

4) Miscellaneous Damage.

Examination of the data shows that while, i yield of the device, and air and balloon sh underground shots, it is not possible to co yield, type of device or height of burst. damage can be observed where extensive cabl of damage can be indicated, the induced vol an unpredictable manner, similar to a light violent explosion at a conduit entrance 1½ damage to the intermediate signals system.

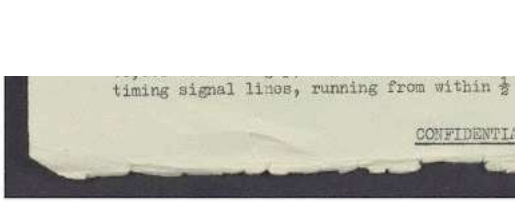
As would be expected, the lighter co showed more serious damage than power lines greater distances by the heavier cables, ca distances of over 30 miles from G.Z. Damag could be catastrophic in either case.

A point not apparent from the damage of telephone communications. The contracto to remove the commercial type carbon blocks these were found in most cases to fuse or w signal. Jumpers were substituted in their

Protection against anticipated effec equipment, in which extensive earthing and were to a large extent effective. The dang is shown by the random malfunctioning of th of camera shutters. This effect was subseq induced electric field, confirming the caus increased sensitivity of equipment implies magnetic effects, and that protection of op obliteration ('blooming') or distortion of

Actual measurement of an induced vol where approximately 3250 volts was recorded 10,000 volt air gap, inserted in an unconne


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timing signal lines, running from within ½
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Damage to Signals Systems

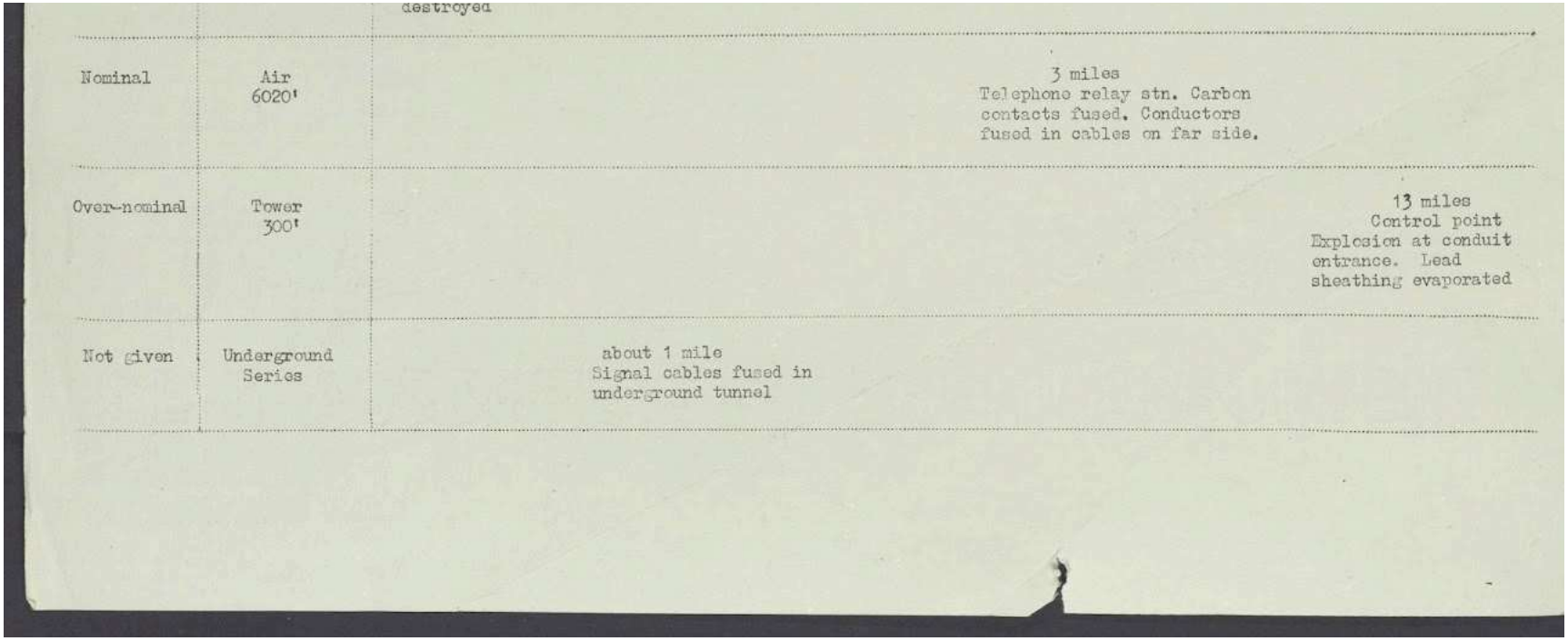
Typical

Distance from G.Z.

1560'	½ mile	2½ miles	5½ miles	8 miles	17 miles
Connection Box Invariably blown or fused	Timing Distribution Station Meters, relays burned out. Terminal strips melted	Timing stations Meters, potentiometers, relays damaged or destroyed. Pins melted off relays, meters burned out.			Control Point Meters, Relays burned
Cables fused Insulation breakdown	Cables fused Insulation breakdown	Cable insulation damage		Cable insulation damage	

Examples

Yield	Type and Height of Burst			
Over-nominal	Tower 700'		2 miles Timing Stns. 6 meters and potentiometers, 3 relays destroyed.	17 miles Control Pt. 2 meters destroyed
Sub-nominal nominal and over-nominal	Series of balloon shots No height given	1500' Connection box for balloon signal cable destroyed.	½ mile Timing Distn.Stn. Insulation destroyed Conductors fused together.	2 miles Timing Stns. Insulation breakdown on cables.
Nominal	Tower 500'	3500' Timing Distn. Stn. Random malfunction of indicators		
Nominal	Air 524' GRABLE, 15 KT			2½ miles Timing station Random malfunction of indicators
Sub-nominal	Series of Balloon shots No height given	1500' Connection box for balloon signal cable destroyed	½ mile Timing Distn.Stn. Cables to sub-station and Timing stations damaged.	
Not given	Series of Tower shots No height given	1500' Suppression box Capacitors	½ mile Timing Distn. Stn. Relays burnt out	



		destroyed
Nominal	Air 6020'	3 miles Telephone relay stn. Carbon contacts fused. Conductors fused in cables on far side.
Over-nominal	Tower 300'	13 miles Control point Explosion at conduit entrance. Lead sheathing evaporated
Not given	Underground Series	about 1 mile Signal cables fused in underground tunnel

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Damage to Power Systems

Typical

Distance from G.Z

1000' Portable sub-station	3000' Power distribution Station	3 miles Power distribution station	12 mile Control P
Fuses blown, arcing across insulation.	Fuses, blown, arcing across insulation. Short-circuiting across transformer windings. Arcing to transformer case.	Oil circuit breakers tripped	

Pinhole damage to cable insulation, near to sub-station

Cable insulation damage

Examples

Yield	Type and Height of Burst	
Over-nominal	Tower 300'	½ mile. Experimental cages; ½ mile radius from G.2. Cables buried 18" depth. All destroyed by pinholes in insulation.
Nominal	Tower 300'	1000' Sub-station and power stations; 6' underground. Cable between stations destroyed. Transformer primary fused, and arced to core.
Not given	Underground series	about 1 mile, underground tunnel. Insulation damage, by charring, to power cables.

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Damage to certain Systems in which extensive Earthing and Screening was used

Yield	Type and Height of Burst	Distance from G.Z.
Not given	Series of Tower and balloon shots	Station at 3000 ' Resistors destroyed
Over nominal	Tower 500'	Station at 3000' Oscilloscope exploded
Nominal	Tower 300'	1000' Station 6' underground. Transformer primary fused, arcing to core. — 2 miles Photographic recor Electronic countin Malfunctioned in r
Not given	Series of Tower and balloon shots	Station at 3000' Pins of rectifiers in oscilloscopes burned off. Glass envelope shattered in most cases. 6 x 4 type rectifie
Nominal	Tower 500'	11 mile Oscilloscope with for light analysi "Ball-of-yarn" dist
Not given	Underground Series	about 1 mile, underground tunnel Breakdown of cable insulation, burned spots for 50 fee

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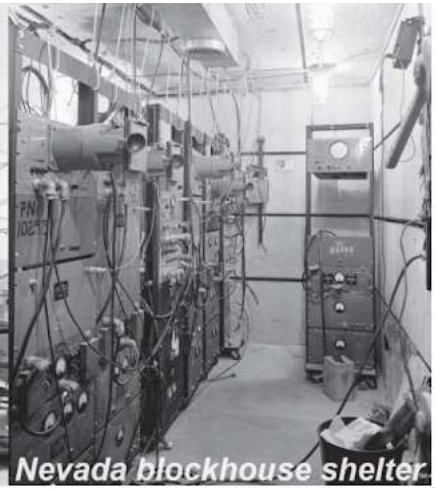
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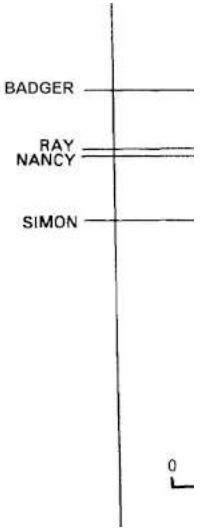
Miscellaneous Damage

Yield	Type and Height of Burst	Distance from G.Z.
Nominal	Balloon 1500'	3 miles 1000 feet length of 4-conductor, 6000 V cable, on reel, unconnecte Pinhole damage to insulation along complete length.
Nominal	Tower 300'	3000' 1000 feet length of single-pair wire, on surface, unconnected. D station building. Burning at end touching metal plug in wall, 3" wall, melting of wires for ½".
Nominal	Balloon 1500'	5½ miles Galvanometer recording of 3250 volts induced in timing signal lin unconnected, running from timing distribution stati n at ½ mile fro

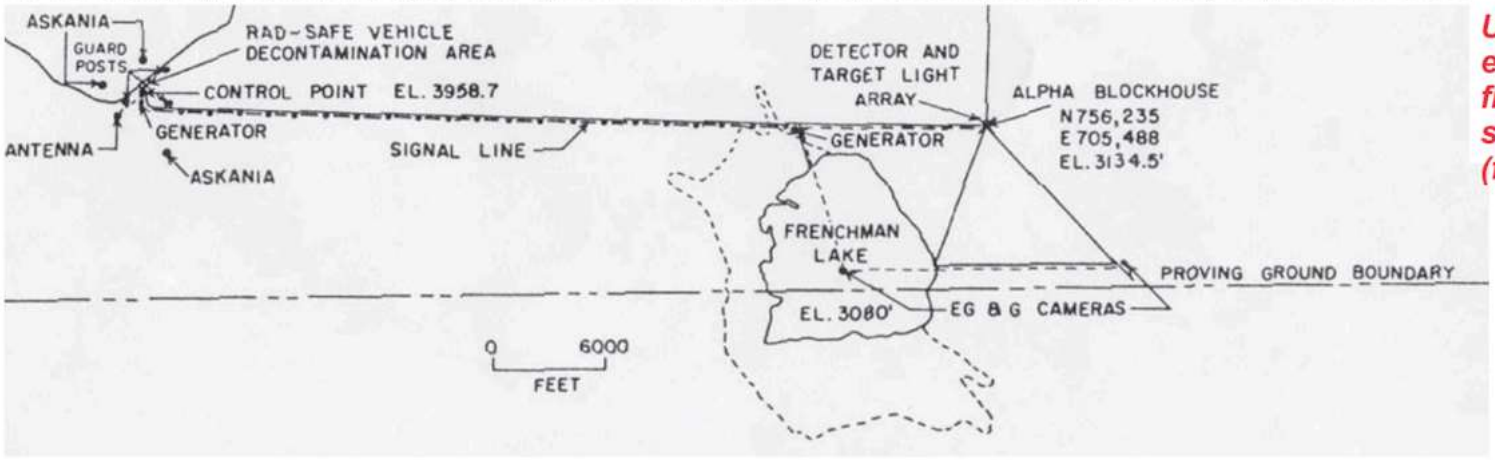
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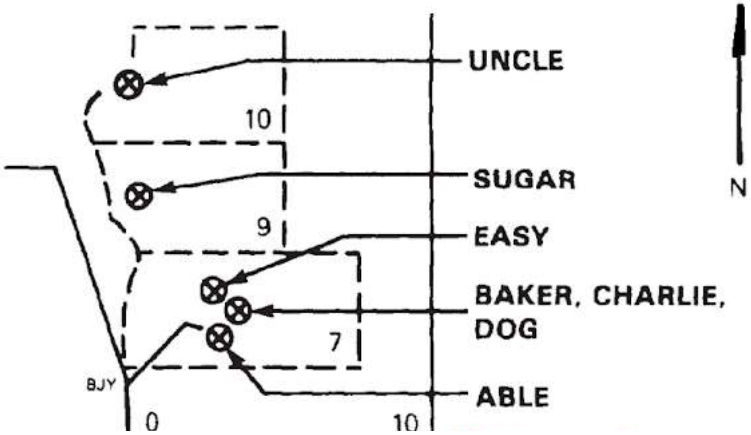


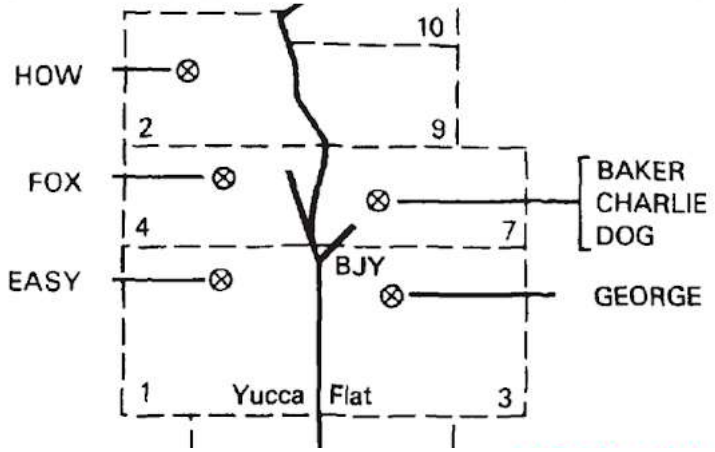


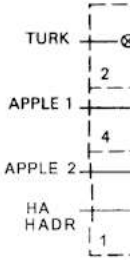
John C. Clark, Operation Ranger, Vol. 1, Report of the Deputy Test Director, WT-206, September 1953

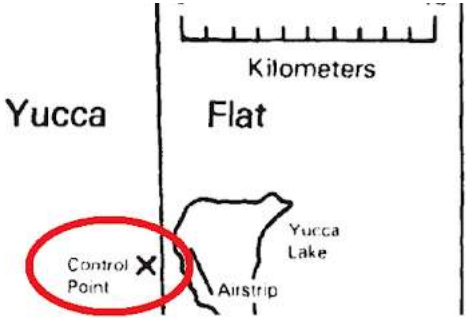


Upshot-Knot effects cable from ground shot to contr (from DNA 6

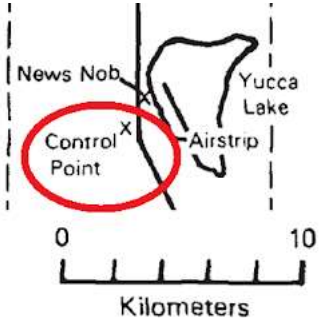








Distance of nuclear ground zero to Nevada control point for 1951 Operation Buster-Jangle tests (source: DNA 6023F)



1952 Tumbler-Snapper map of control point distance to shot points (DNA 6019F)

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XY/306/01

Minutes of a Meeting held in Room 208, Horseferry House, Dean Ryle Street, S.W.1, at 10.30 a.m. on 20th October, 1964.

Present		Representing
Mr. H.A. Sargeaunt	In the Chair	Sc. Adv., Home Office.
Mr. J. Brooker		Home Office, Comm. Branch
Mr. R.E. Glaysher		" "
Mr. N. Morley		" "
Mr. R. Watson		" "
Mr. R. Firth		" "G" Divn.
Mr. J. Miles		" S.A.B.
Mr. F.H. Pavry		" "
Mr. G.R. Stanbury		" "
Mr. E. Leader-Williams		" "
Mr. N.F. Law		" Warn. & Mon. Branch
Mr. J. Gelly		" " " "
Mr. G. Potter		" " " "
Sir W.H. Merton		Insp.Gen. of C.D.
Mr. C.E.C. Hurst		Ministry of Public Buildings and Works
Mr. C.W. Mott		C.E.G.B./H.Q.
Mr. E.J. Whitcher		London Elec. Board.
Mr. T. Kilvington		G.P.O./E.D.
Mr. K. Ford		G.P.O./I.T.D. PB.
Mr. R.H. Franklin		G.P.O./E.D. L.M.O.
Col. T.W. Armour		A.W.R.E.
Gp.Capt. P.M. Chettle		M.O.A., A.D./A.W.D.2.
Mr. D.J. Garrard		" A.W.D.2 (Effects)
Mr. T.S. Popham		M.O.D./Ord. Board
Mrs. M.I. Wilkie	Secretary	M.O.A., A.W.D.2.

1. Mr. Sargeaunt introduced the speakers from the Ministry of Aviation and the Ordnance Board, and said that the meeting was specifically concerned with the hazard from electromagnetic flash to electrical installations and equipments of all kinds. Group Captain Chettle said that it was necessary to correlate the damage radius for EM flash with those of the more obvious hazards from a nuclear burst, in order to assess its significance at any given position. A brief summary of the main effects, including nuclear radiation, would be presented, proceeding to EM flash phenomena. Thence the meeting should proceed to its main purpose, which was to obtain the views of users of equipments and installations threatened by this hazard. A knowledge of the problems in the communications and power transmission fields was necessary, in order that research could be directed to their solution. Work in this field was co-ordinated by the Nuclear Weapons Lethality Committee. This was an inter-departmental committee which was the link between the specialists working at A.W.R.E. and those in other Government departments. The staff of D.A.W.D., Ministry of Aviation, acted as executive to the committee.

2. Mr. Garrard said that information on EM flash had lagged behind that on other effects since instrumentation at earlier trials was specifically aimed at weapon design measurements. Much of the data had been accumulated incidentally in making other measurements, and was in consequence less complete than was desirable. However, a few trials had been instrumented to obtain the required parameters, and a sufficiently consistent reservoir of knowledge now existed for the formulation of a theoretical model adequate for engineering purposes.

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time history beginning at 10 nano-seconds. Actu
radiation was emitted in the first microsecond, a
second. To this must be added the neutron emiss
gamma pulse by interaction with air and ground el

4. Typical curves for the pulse from a megaton
shown, giving time history at 1 mile and 2,000 ft.
respectively. He pointed out that the EM flash
ionising nature of the gamma pulse, was a transie
misfiring, or loss of reference in memory circuit
other hand, caused permanent damage, changing the
of semi-conductor components. A normal criterio
would be 50% loss in current gain, but sensitivity
if adjustment were critical. Neutron damage was
beyond the range for severe blast damage.

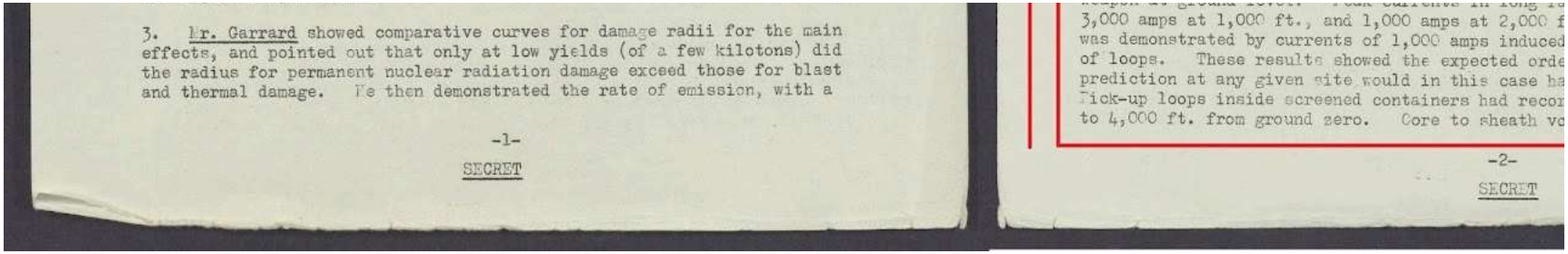
5. Mr. Popham gave a brief account of the mecha
sphere, and hence the electromagnetic pulse, is f
stripped from atoms in the vicinity of the burst
and gamma radiations. The consequent Compton el
radially, until eventually slowed down and absorb
ionised matter results. Oscillations of this sp
field observed at a distance. The size of the s
with weapon yield. About 4,000 volts/metre is t
the electric field expected at its surface. Tim
shows a rapid rise time, in 10^{-8} seconds, a durati
microseconds, with frequencies about 10^4 cycles/s
increases with yield, scaling as $W^{1/3}$. Both the
corresponding magnetic field have been determined
ionised sphere but conditions within the sphere a
accuracy. Extrapolation from observed values ou
since the highly conducting nature of the sphere

6. Calculation of the induced currents from the
dimensions of the conductor was not difficult.
became the product of field strength and probe le
directly with distance from burst. Obviously wi
circuitry, comprising loops and sections differen
current strength could not be so easily assessed,
was not valid if the conductor approached the wav
However, it was apparent that large local voltage
results depending upon resistance or insulation i
were comparable with those of normal radar, at di
from the ionised sphere.

7. Mr. Miles asked if the ionised sphere could
and Mr. Popham agreed that this rationalisation w
effects, assuming a vertical axis, which appeared
to Mr. Law, Mr. Garrard indicated the variation o
distance as shown by curves for electric and magn

$E = \frac{10^7}{R}$ (E in volts/metre, R in metres) was true
but within it fields tended to be constant as a r

8. Mr. Garrard quoted some results from an actu
weapon at ground level. Peak currents in long r



3. Mr. Garrard showed comparative curves for damage radii for the main effects, and pointed out that only at low yields (of a few kilotons) did the radius for permanent nuclear radiation damage exceed those for blast and thermal damage. He then demonstrated the rate of emission, with a

-1-

SECRET

3,000 amps at 1,000 ft., and 1,000 amps at 2,000 f
was demonstrated by currents of 1,000 amps induced
of loops. These results showed the expected orde
prediction at any given site would in this case ha
Pick-up loops inside screened containers had recor
to 4,000 ft. from ground zero. Core to sheath vo

-2-

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ABOVE: The British government has now **declassified detailed summary reports giving secret original nuclear test data on the EMP (electromagnetic pulse) damage due to numerous nuclear weapons**, data which is still being kept under wraps in America since it hasn't been superseded because Western atmospheric nuclear tests were stopped late in 1962 and never resumed - **even though the Russians have even more extensive data** - completely debunking Glasstone and Dolan's disarmament propaganda nonsense in the 1962, 1964 and 1977 Effects of Nuclear Weapons which ignores EMP piped far away from low altitude nuclear tests by power and communications cables and falsely claims instead that such detonations don't produce EMP damage outside the 2psi blast radius! For a discussion of the new data and also a link to the full 200+ pages version (in addition to useful data, inevitably like all official reports it also contains a lot of "fluff" padding), please see the other (physics) site: **https://nige.wordpress.com/2023/09/12/secret-emp-effects-of-american-nuclear-tests-finally-declassified-by-the-uk-and-at-uk-national-archives/** (by contrast, this "blogspot" uses old non-smartphone proof coding, no longer properly indexed any long longer by "google's smartphone bot"). BELOW: **declassified British nuclear war planning blast survival data showing that even without special Morrison table shelters, the American assumption that nobody can survive in a demolished house is false, based on detailed WWII British data (the majority of people in houses flattened within 77 ft from V1 Nazi cruise missiles survived!), and secret American reports (contradicting their unclassified propaganda) proved that blast survival occurred at 16 psi overpressure in Hiroshima's houses, e.g. see limited distribution Dirkwood corp DC-P-1060 for Hiroshima, also the secret 1972 Capabilities of Nuclear Weapons DNA-EM-1 table 10-1, and WWII report RC-450 table 8.2, p145** (*for determining survival of people sheltered in brick houses, the WWII A, B, C, and D damage versus casualty data from V1 blast was correlated to similar damage from nuclear blast as given Glasstone's 1957 Effects of Nuclear Weapons page 249, Fig. 6.41a, and page 109 Fig. 3.94a, which show that A, B, C, and D damage to brick houses from nuclear weapons occur at peak overpressures of 9, 6, 3 and 0.5 psi, respectively; the longer blast from higher yields blows the debris over a wider area, reducing the load per unit area falling on to people sheltered under tables etc*), and the declassified **UK government assessment of nuclear terrorist attack on a port or harbour, as well as the confidential classified UK Government analysis of the economic and social effects from WWII bombing (e.g. the recovery times for areas as a function of percentage of houses destroyed)**:

SECRET

MOD Form 45B

PRO MINISTRY OF DEFENCE

Registered file number D/407/104/11/10

1. ATTENTION IS DRAWN TO THE NOTES ON THE INSIDE FLAP
2. ENTER NOTES OF RELATED FILES ON PAGE 2 OF THIS JACKET

DIVISION D. Sc. 6.

FOR REGISTRY USE ONLY

Date opened 17/8/70

SUBJECT NUCLEAR WEAPON EFFECTS — SYMPOSIUM - DECEMBER 1970.

Referred to	DATE	Referred to	DATE	Referred to	DATE	Referred to	DATE

DEFE 7/2401

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4 Conclusion

In the two years since we first started work we have begun to understand some of the problems caused by EMP. A degree of confidence has been gained from this experience, but it is recognised that the greater part of the task lies in the future and there is still much work to be done.

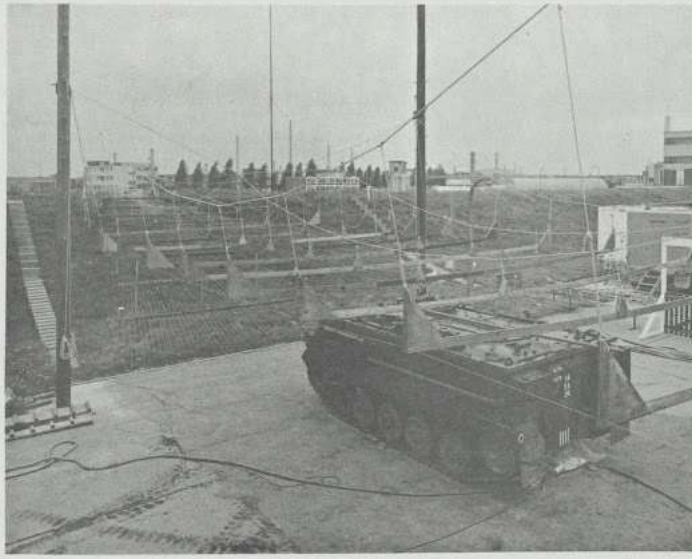
EMP simulator test of tank. Nuclear Weapons Effects Symposium, 11 December 1970 (UK National Archives, DEFE 7/2401)

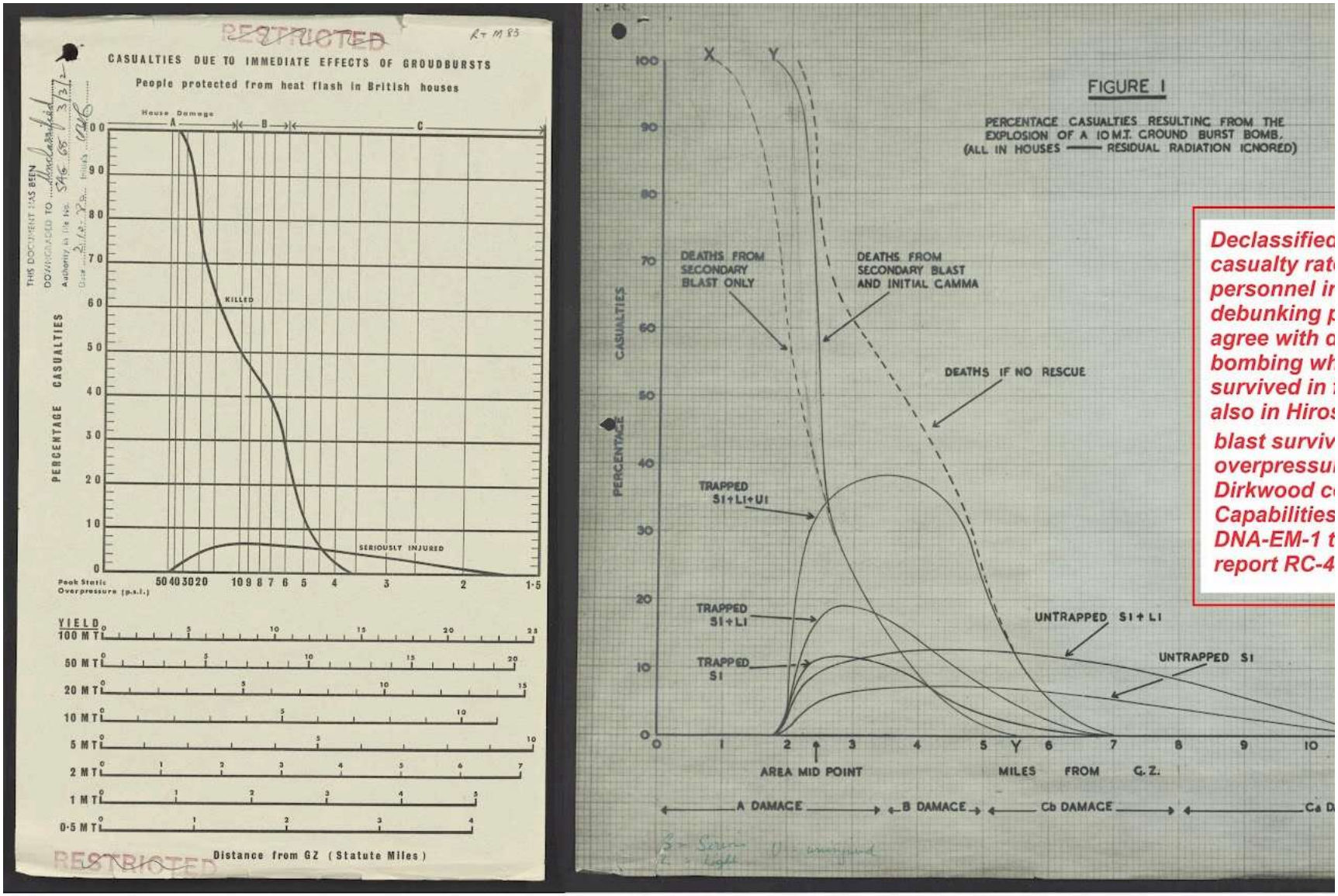
EMP simulator test of aircraft, Nuclear Weapons Effects Symposium, 11 December 1970 (UK National Archives, DEFE 7/2401)



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FIG. 1.




RESTRICTED
R + M 83
CASUALTIES DUE TO IMMEDIATE EFFECTS OF GROUDBURSTS
People protected from heat flash in British houses
House Damage
A
B
C
PERCENTAGE CASUALTIES
KILLED
SERIOUSLY INJURED
Peak Static Overpressure (p.s.i.)
50 40 30 20 10 9 8 7 6 5 4 3 2 1·5
YIELD
100 MT
50 MT
20 MT
10 MT
5 MT
2 MT
1 MT
0·5 MT
Distance from GZ (Statute Miles)
RESTRICTED
FIGURE 1
PERCENTAGE CASUALTIES RESULTING FROM THE EXPLOSION OF A 10 M.T. GROUND BURST BOMB.
(ALL IN HOUSES —— RESIDUAL RADIATION IGNORED)
X
Y
PERCENTAGE CASUALTIES
DEATHS FROM SECONDARY BLAST ONLY
DEATHS FROM SECONDARY BLAST AND INITIAL GAMMA
DEATHS IF NO RESCUE
TRAPPED S1+L1+U1
TRAPPED S1+L1
TRAPPED S1
UNTRAPPED S1+L1
UNTRAPPED S1
AREA MID POINT
MILES FROM G.Z.
A DAMAGE
B DAMAGE
Cb DAMAGE
Declassified
casualty rat
personnel in
debunking p
agree with o
bombing wh
survived in
also in Hiros
blast surviv
overpressu
Dirkwood c
Capabilities
DNA-EM-1 t
report RC-4

HOME OFFICE

CD/RA 51

SCIENTIFIC ADVISERS' BRANCH

~~CONFIDENTIAL~~ COPY NO. 93

Assumed effects of two atomic bomb explosions in shallow water off the port of Liverpool

Prepared for a Civil Defence Exercise

by

G. R. STANBURY

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1 The assumed attacks

Two extreme but possible types of attack are considered -

(1) a sabotage daylight attack before a declaration of war and

(2) a warned night attack after a declaration of war

The first could be achieved by the delayed-action firing of an atomic bomb brought in by sea and laid on the river bed. There would be no evacuation, and many people would be out of doors, the worst time of day being the lunch hour when it is assumed that 20% would be in the open.

The second could be an airborne attack, but with 5 minutes warning everyone would be under cover. Priority evacuation (30%) would have been carried out.

Two positions for the explosion are considered for each of the assumed types of attack.

No.1 Bomb Midway between Gladstone and Canada Dock gates and 200 yards off shore. This produces the maximum damage to, and dislocation of, the main dock area.

No.2 Bomb Opposite the middle of Princes Pier and 200 yards off shore. This produces the maximum number of casualties due to fall-out.

Depth of explosion

About 10 feet below the surface of the water.

Power of weapon

20 kilotons - a nominal bomb.

Wind and weather

A mean surface wind of 10 m.p.h. from a direction 15° N of W. (N.B. the wind is in this quarter for about half the year). Clear dry weather.

Tide

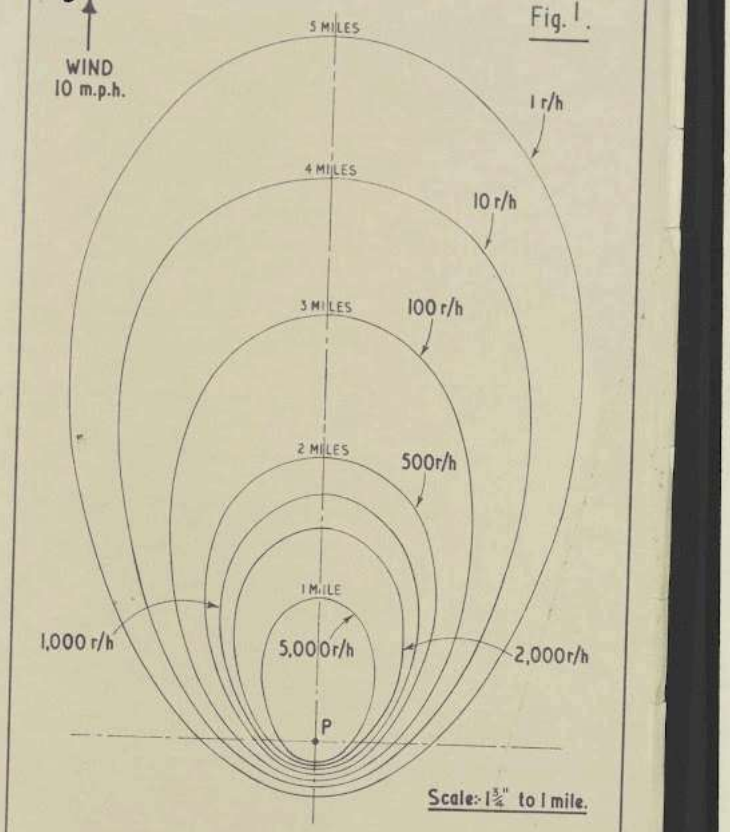
Half flood tide at springs.

2 Blast damage to buildings

For a 1000 ft. air burst full details of the estimated effects on different types of structure are given in Table 1 of the C.D. Training Branch memorandum on "The Estimation of the Effects of Atomic Bomb Attacks on Cities". For this exercise the ranges given in this Table are reduced to allow for the energy absorbed in the water. If we consider a pressure of 10 p.s.i. - a pressure at which the majority of non-framed buildings would be destroyed - then the range would be 15% less for a ground burst than for a burst at 1000 ft. In this case we are considering an explosion under 10 ft. of water which would produce a further small reduction. At Bikini a similar bomb

1

Fig. 1.



ESTIMATED LAND CONTAMINATION AT 1 HOUR FROM A SHALLOW UNDERWATER BURST AT P.

(CD 1427)

SCIE

Annuli for cal

b

Summary

The basic scheme
number of people kille
within the central dis
number of people withi
yet seriously injured
the 100% killed disc a
yields in Table 2.

For calculations
The number of casualti
density, per square mi
as appropriate.

Description

The prompt casual
(corrected) - see Fig.
type of casualty (e.g.
population density ρ
of casualty between ra

N =

r.f(r) is plotted
The areas under these
stated type in a territ

The numbers of cas
sq. mile were obtained
Table 1. The ratios be
fixed for different yie
given blast pressures

Casua
with

Type of
Killed
Trapped
Untrapped

CD. 2332

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OFFICE OF THE CHIEF SCIENTIFIC ADVISER

THE ECONOMIC AND SOCIAL EFFECTS OF THE GERMAN AIR ATTACKS ON CERTAIN BRITISH CITIES

UK National Archives

HO 225/13, Home Office: Scientific Adviser's Branch: Reports (CD/SA Series), "The economic and social effects of the German air attacks on certain British cities," 1949 – 145 pages

SUMMARY

1. The report analyses the results of thirteen social surveys made after raids on eleven British towns by Dr. T. McKeown with the collaboration of Dr. F. Yates, together with other relevant information from the Norwich shoe industry, Messrs. Singer's at Clydebank, and the Port Labour Officer at Liverpool.

2. Details are given of the survey method and suggestions made for future surveys of a similar nature.

3. The effectiveness of attack is expressed by four indices; the effective density of bombs, the percentage of buildings destroyed, the percentage of houses destroyed, and the casualties per thousand population, which are all shown to be valid measures.

4. The movements of population following air attacks are considered as movements within the town, trekking and evacuation. Evacuation is, in turn, divided into

(1) Evacuation to contiguous built-up areas,

(2) Evacuation to places within daily reach of the town but separated from it by open country,

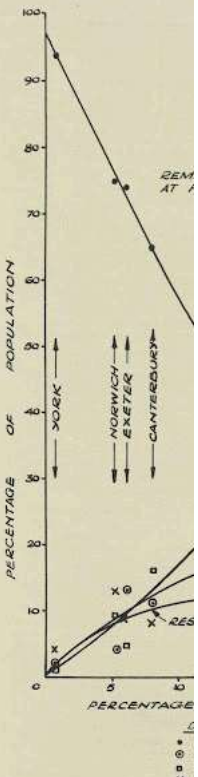
and (3) Evacuation to places beyond daily reach of the town.

5. It is shown that evacuation and trekking together are, in general, proportional to the effectiveness of the attack and the percentage of people moving thus is three times that of the houses destroyed and thirty times that of the people killed. The movements of workers in relation to the degree of house damage are analysed and a curve is given from which the proportions of people, evacuating, trekking, moving in the town or staying at home may be estimated for up to 35% of houses destroyed. The proportion evacuating with 35% of houses destroyed, corresponding to about 75% of houses uninhabitable, is likely to be 90% while trekkers will form only 1% of the whole. Trekking will be at a maximum (20% of the population) with about 15-20% of houses destroyed.

6. The evaluation of loss of time from work after air attack was a major objective of the surveys, and this was done for three weeks after a raid, for sixteen weeks, and for a period of about two years. Loss of time only included that due to air raids, i.e. either to lack of work due to damage to the place of work, to wounds or to personal reasons other than sickness. It is shown that loss of time from work is in general proportional to the effectiveness of attack, however measured, and that on the average every worker in a town lost 0.37 day per 1% of buildings destroyed, 0.40 day per 1% of houses destroyed, 0.15 day per metric ton of bombs per square mile (effective density over the whole town) and 0.81 per fatal casualty per 1,000 population. These figures are for the first three weeks after a raid. The loss for the sixteen-week period is found to be greater by a factor of 1.5 and that for the two-year period by a factor of 2.5.

7. Loss of time is then divided into two kinds, that beyond the workers' control, i.e. that due to work not being available or to injuries, and that described as time lost for personal reasons. Time lost for personal reasons is shown to be also, in general, proportional to the effectiveness of attack and to be, for each index of effectiveness of attack, two-thirds of the time lost from all causes.

8. The relationship between absenteeism for personal reasons and degree of house damage is studied and it is shown that, on the average, a worker loses six days when his house is totally destroyed or rendered permanently uninhabitable, and three days if the house is temporarily uninhabitable. Much of this time is, presumably, spent in seeking alternative accommodation and moving into it.

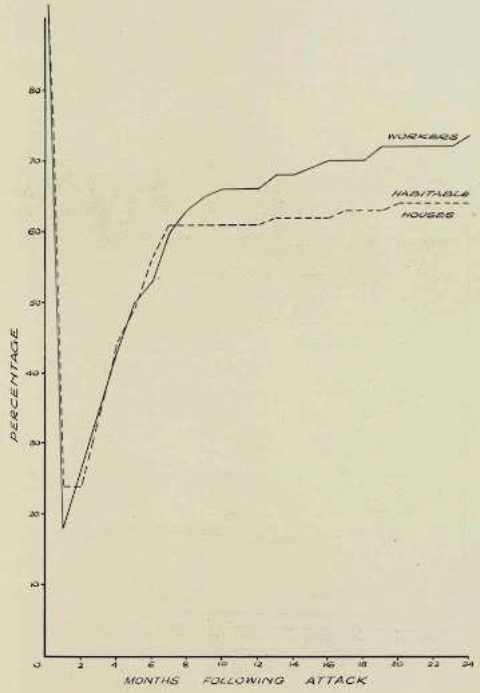


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FIGURE. 7.

PERCENTAGE OF WORKERS LIVING IN CLYDEBANK COMPARED WITH PERCENTAGE OF HABITABLE HOUSES

(FOR TWO YEARS FOLLOWING RAID)



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LOSS OF TIME FROM ALL CAUSES

(FOR 3 WEEKS AFTER ATTACK)

FOR MEANING OF SYMBOLS SEE TABLE 6
THE DOTTED LINES INDICATE THE LIMITS OF ERROR OF THE ESTIMATE GIVEN BY THE CORRESPONDING FULL LINES.

FIGURE. 9.

LOSS OF TIME AND BUILDING DAMAGE

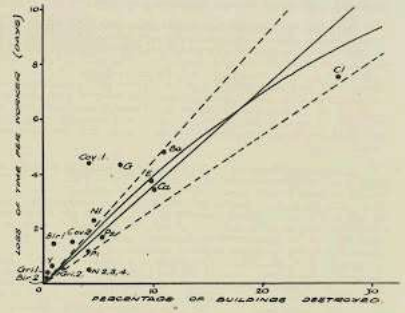
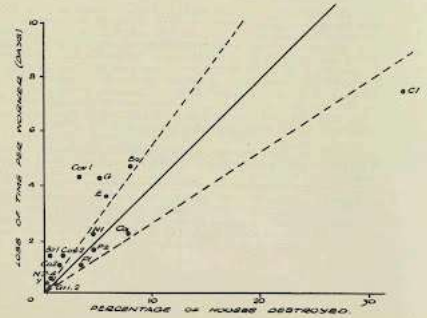
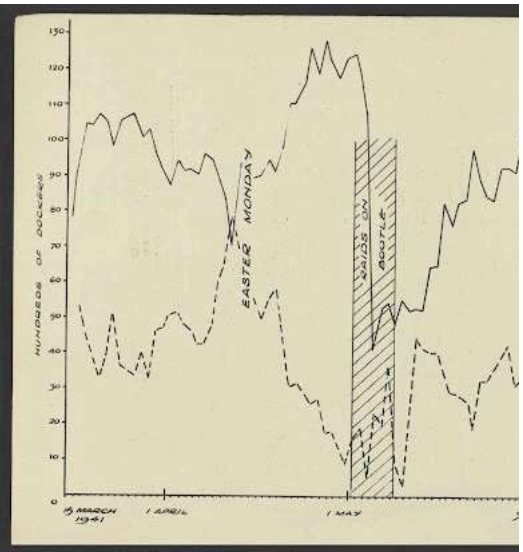


FIGURE. 10.

LOSS OF TIME AND HOUSING DAMAGE.





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APPENDIX XII

SUMMARY OF THE PSYCHIATRIC EFFECTS OF SEVERE PERSONAL EXPERIENCES DURING AIR ATTACK

Dr. Russell Fraser

A report has been given elsewhere[#] of the psychiatric effects of severe personal experiences during the air attacks on Hull. Here the subject will be summarised only. A group of cases, admitted to First Aid Posts in Hull during a period of heavy air attack, was followed up ten months later; 127 cases (7% of the original sample) were visited; a severe personal experience had been the main reason for admission in 55%, and had preceded the admission in 75% of the cases.

(1) Of the 35 who had been buried for over one hour, 66% developed neurotic symptoms, and 40% neurosis causing absence from work; in about equal proportions the neurosis was either temporary or persistent (i.e. persisting at the interview 10 months later).

(2) The type of neurosis among those who had suffered personal involvement was predominantly mixed depression and anxiety (56%) or either of these alone; a further 16% were cases of anxiety hysteria. 27% had trekked (18% regularly for more than 2 weeks), and 32% evacuated for a period following the experience, while 53% neither evacuated nor moved permanently to a safer area of

UK National Archives catalogue document: HO 225/13

TABLE 70

Relation between facts given in the local press of raided towns and the intensity of attack

	York	Norwich	Greenock	Exeter	Canterbury	Bootle
Number of looters reported as convicted, per 1,000 people in the town.	0.01	0.03	0.05	0.22	0.05	0.55
Time in days before any schools reopened.	0	0	13	21+	?	22
Time in days before details of damage were given.	30	30	26	30	30	some at 14
Time in days before town was named.	0	0	26	5	0	0
% of buildings destroyed.	0.7	8.7	(7)	9.8	(10)	(11)
% of houses destroyed	0.7	5.1	5.2	5.8	9.5	8.1
Days lost per worker for all reasons.	0.6	2.3	4.3	3.2	2.3	4.8
Days lost per worker for personal reasons.	0.7	1.1	3.0	0.9	1.3	2.8

Figures in brackets represent estimates.
Days lost per worker are for the first three weeks in both cases.

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Collated Papers Presented at the

NUCLEAR WEAPON EFFECTS SYMPOSIUM

Held at Ministry of Defence, Main Building
Whitehall, London SW1
on
Friday 11 December 1970

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February 1971

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GENERAL POSITION REPORT ON NUCLEAR WEAPON EFFECTS

A D Greenhalgh (AWRE)

1 Introduction

Nuclear Weapon outputs are well defined in Capabilities, DASA EM1 (previously known as TM-23-200), [Ref 1] and I don't propose to go over again the blast, thermal and radiation data.

2 Thermal Radiation

The thermal output from a nuclear weapon is defined by:

$$Q = \frac{E\,W\,f\,T}{4\pi R^2}$$

Where Q is the total energy falling on a surface at a distance (slant range) R. When Q is in cal/cm^2
Then E = 10^{12} calories
W is the yield in kilotons
f is 1/3 for low airbursts
and R is in metres
(for SI units, 1 cal = 4.19 Joules and 1 Joule/mm^2 = 25 cal/cm^2 approx)

T is the transmissivity of the atmosphere and to take account of this causes some complications. Weather conditions in Northern Europe are very variable and do not necessarily conform with the conditions on which the data in DASA EM1 are based. If T is assumed to be unity, then we get a straight line on a log/log plot of Q versus range (see Figure 1). In the QSTAG, as in DASA EM1, T is calculated from an empirical relationship:

$$T = e^{-3.91\frac{R}{V}\left(1 + 0.7\frac{R}{V}\right)}$$

where V is the visibility.

Early this year Major C Pritchett (then attached at AWRE) continued a study started earlier by Mr R Rankin of D Sc 6, of data provided by the meteorological office of the visibility and cloud cover for a number of airfields in West Germany over a number of years. Snow cover data were also studied [Ref 3].

REFERENCES

1 Capabilities of Nuclear Weapons, DASA EM1 dated 1.1.68 (Confidential)

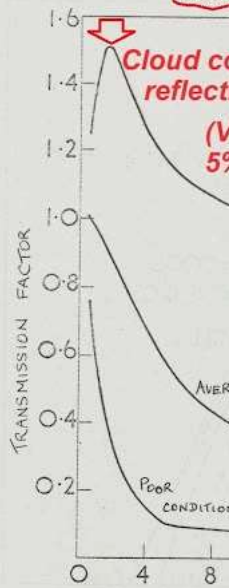
3 Thermal Transmission Factors for Use in Military Studies, Major C Pritchett, SMR Tech Memo No 1/70 ref: AWRE/ARMY/R2/4 dated June 1970 (Restricted)

4 G F Riley: Empirical Determination of Scattered Light Transport through the Lower Atmosphere. AFCRL-68-0256 dated May 1968

REST

Riley's model of the

AFCRL



VARIATION OF
WITH D

FIGU

REST

UK AWRE Nuclear Weapons Effects Symposium - UK National Archives
DEFE 7/2401

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TABLE 3

DAMAGE RANGES AND SAFE DELIVERY DISTANCES

SURFACE SHIPS - 10 KT WEAPON

DEPTH OF BURST (FEET)	HORIZONTAL RANGE (YARDS)			
	SHOCK LEVEL			
	SEVERE	MODERATE	LIGHT	SAFE DELIVERY
100	200	300	450	900
250	350	500	800	1500
500	500	800	1200	2300
1000	800	1200	1800	3200
2000	1100	1600	2300	4300

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Page 3C

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TABLE 4

SPREAD OF BASE SURGE FROM A 1

DEPTH OF BURST (FEET)	RADIUS OF BASE	
	20 SECONDS	60 S
300	740	1
500	670	1
1000	570	1
2000	500	12

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PAGE 32

TABLE 5

DAMAGE RANGES AND SAFE DELIVERY DISTANCES
SUBMARINES - 10 kT WEAPON (BEAM EXPOSURE)

OPERATING DEPTH	DEPTH OF BURST (FEET)	DEPTH OF SUBMARINE (FEET)	HORIZONTAL RANGE (YARDS)			
			SHOCK LEVEL			SAFE DELIVERY
			SEVERE	MODERATE	LIGHT	
ALL VALUES	100	50	450	550	800	1200
		> 400	1000	2100	5000	10000
	250	50	700	850	1300	1900
		> 400	1000	2100	5000	10000
	500	50	900	1300	2000	3100
		> 400	1100	2200	5100	10000
	1000	50	1200	1800	2800	4300
		> 400	1300	2300	5100	10000
	2000	50	1400	2300	4000	6000
		≥ 400	1400	2300	5200	10000

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MILITARY ASPECTS

Air Force Department - The Vulnerability of
in a Nuclear War Environment

Wg Cdr J Potter (MOD(AIR))

Introduction

1 I would like to take the opportunity t
philosophy in assessing the vulnerability of str
Weapon effects.

2 Aircraft in flight close to a nuclear
to blast, thermal and nuclear radiation and Elec
and the pilots could be blinded by the nuclear f

3 In a general nuclear war in Europe it
bases and control centre will be destroyed by en
of hostilities, although we expect to recieve su
our strike aircraft from their bases before this
our aircraft have escaped the enemy missile stri
primarily concerned with the environment through
will have to fly to reach their targets. We bel
of Nuclear Activity during the time our aircraft
would be encountered in crossing the ground batt
land frontier, as strike aircraft are expected to
planned allied strikes and likely enemy targets

4 The actual intensity will vary, depende
penetration is made. The highest nuclear intens
zone. Consideration of the narrow slice of the
through which a strike aircraft will penetrate,
of the battle front and 10nm either side of the
worst case to be assessed. The time in the zone
depending on the speed of the aircraft and up to
or low airbursts might be expected within this z
This estimate is based on an AIR CENT assessment
a pilot might see crossing the zone and further
Thirty strikes would represent the maximum feasi
be unlikely to be sustained for long periods. I
probable assessment of the sustained intensity o
maximum feasible rate (15 strikes in 6 minutes).

5 The intensity of effects within this s
affected by assessments of the yield of weapons
between 1 and 100kt was made for use in a mathem
investigate the effect of the intensity of this
Some larger weapons may be used but these are ex
immediate battle area.

6 The effects associated with blast are
considered that a strike aircraft flying at low
damaged and incapable of flight if it is subject

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15 kt at 100 ft height of burst

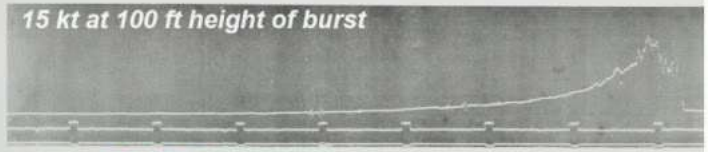


FIG.5. Buffalo-1 precursor AG 104 1170 FT. 36 P.S.I.

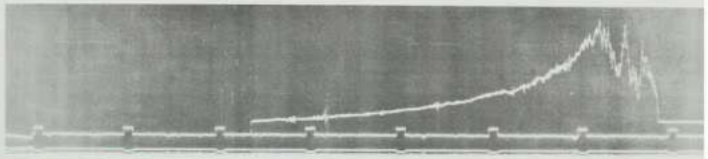


FIG.7. Buffalo-1 precursor AG 108 1520 FT. 22·7 P.S.I.

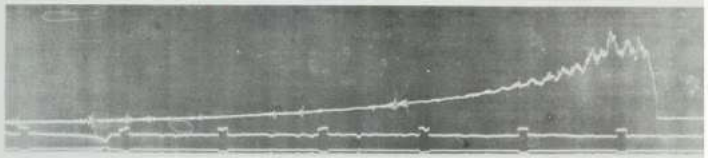


FIG.8. Buffalo-1 precursor AG 109 1730 FT. 20·4 P.S.I.



FIG.9. Buffalo-1 near ideal AG 111 1960 FT. 15 P.S.I.

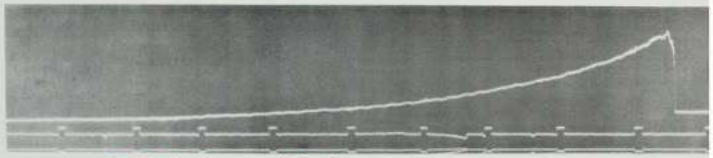


FIG.10. Buffalo-1 near ideal AG 112 2140 FT. 13·5 P.S.I.

Buffalo-1 precursor waveform development and fading
Ambient air: 22C, 998mb, 18% humidity

3 kt at 490 ft height of burst

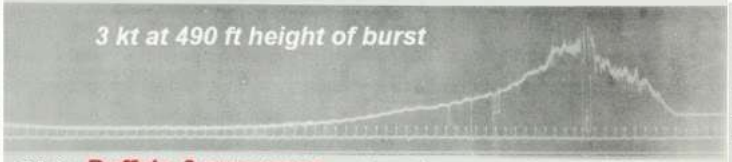


FIG.21. Buffalo-3 precursor AG 405/1 740 FT. 24·7 P.S.I.

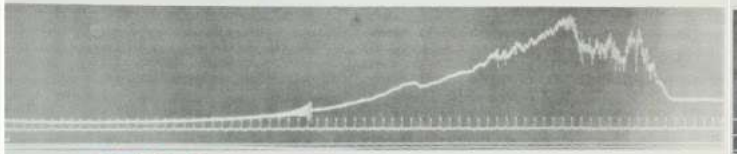


FIG.22. Buffalo-3 precursor AG 407 990 FT. 16·4 P.S.I.

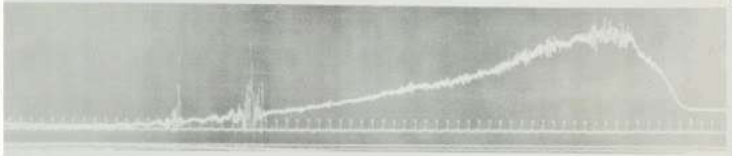


FIG.23. Buffalo-3 precursor AG 408 1320 FT. 9·9 P.S.I.



FIG.24. Buffalo-3 near ideal AG 411 1750 FT. 8·9 P.S.I.

(Buffalo-3 ambient air: 24.1C, 998mb, 35% humidity)





F.M.T. blast pressure gage with magnetic tape system

10 kt at 100

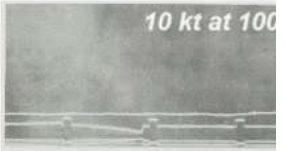


FIG.11. Buffalo-4 precu

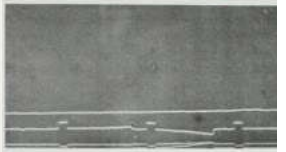


FIG.12. Buffalo-4 pre



FIG.13. Buffalo-4 precu

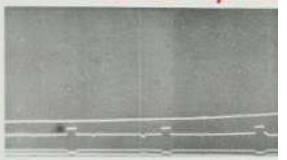


FIG.14. Buffalo-4 precu

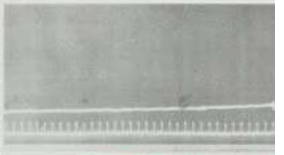


FIG.15. Buffalo-4 near i

Buffalo-4 ambient air:

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ATOMIC WEAPONS RESEARCH ESTABLISHMENT

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OPERATION ANTLER

(32)

Target Response Group
(Group Leader Plans: E. R. Drake Seager)
(Group Leader Operations: Lt.Col. E. T. Wray, REME)

The Shielding from Initial Radiation

Afforded by Soil

Maj. D. B. B. Janisch, RA

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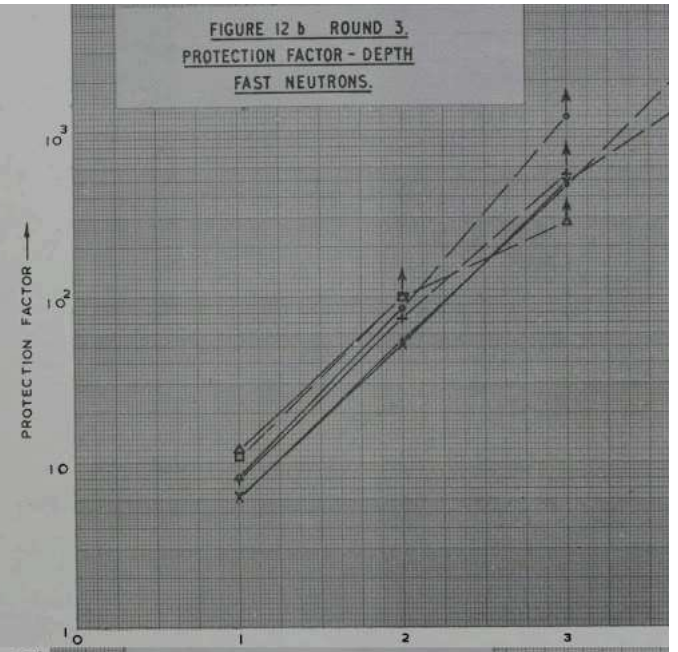
[redacted]

A.W.R.E.,
Aldermaston, Berks.

November, 1958

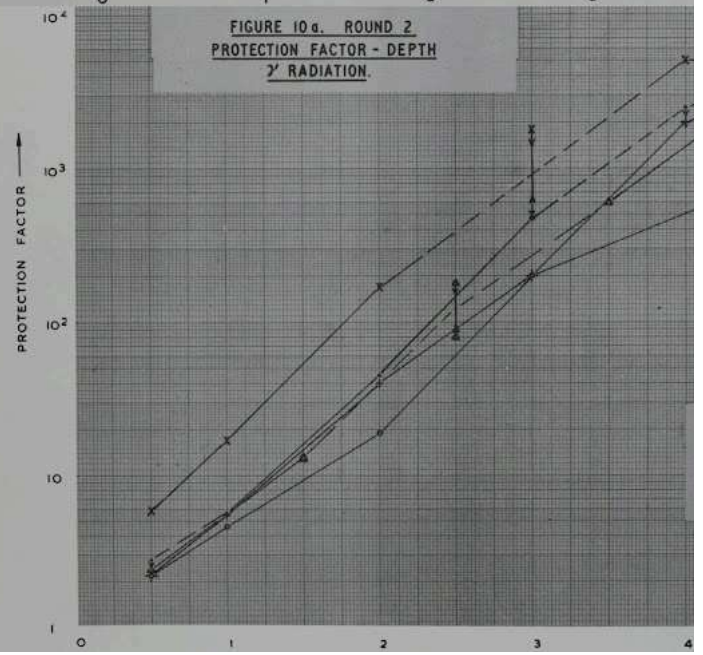
-44-

FIGURE 12 b ROUND 3.
PROTECTION FACTOR - DEPTH
FAST NEUTRONS.



-20-

FIGURE 10 a. ROUND 2.
PROTECTION FACTOR - DEPTH
γ RADIATION.



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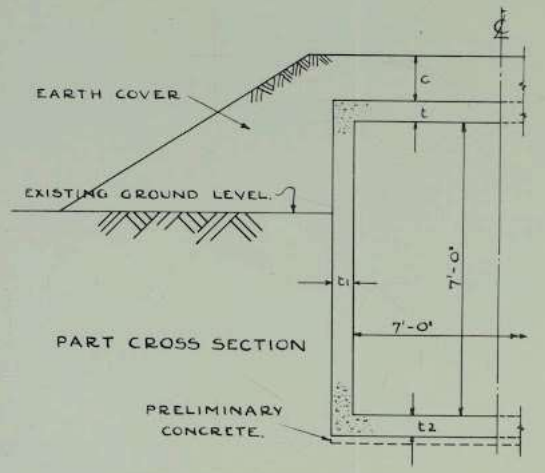
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The Safety-Cost Relationship for Certain Types of Surface and Trench Shelters

A Joint Home Office and
Ministry of Works Study

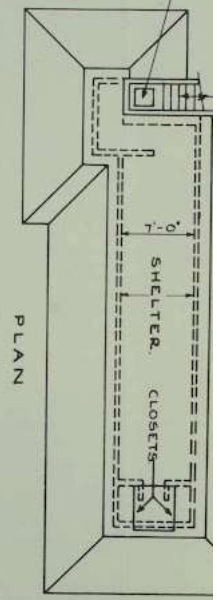
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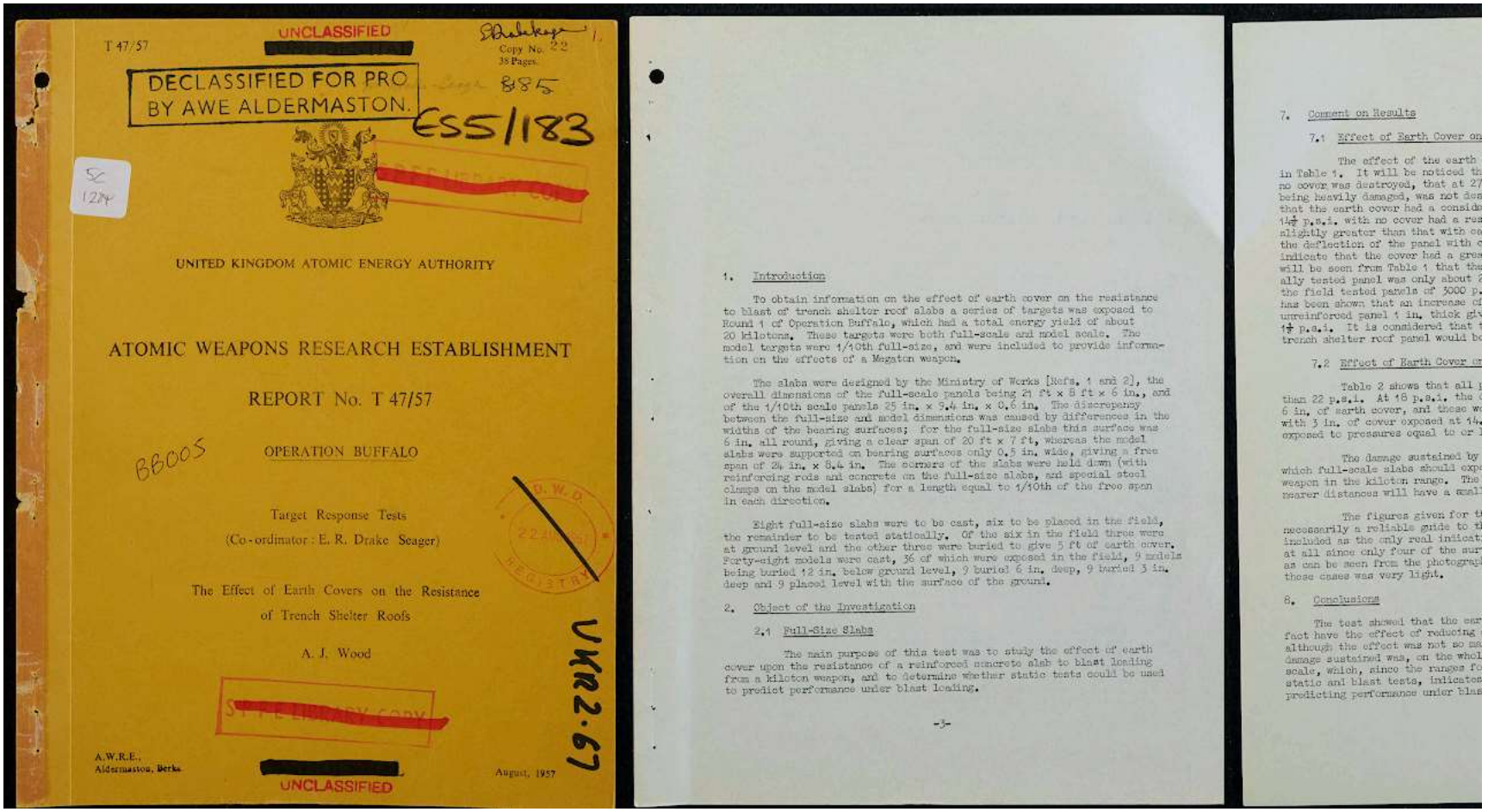
CASE No.	BLAST LOAD	ROOF THICKNESS t (IN)	WALL THICKNESS t1 (IN)	FLOOR THICKNESS t2 (IN)	EARTH COVER 'C' FEET	WT. OF REINFORCEMENT PER FT. RUN OF SHELTER (LB)	TOTAL WT OF STEEL IN SHELTER (LB)
1	1400	7½	5	5	1·0	46·9	2110
	1000	6	"	"	"	41·3	1896
	500	5	"	"	"	35·6	1701
	250	"	"	"	"	33·0	1606
2	1400	7½	5½	5½	2·0	51·7	2367
	1000	6	5	5	"	51·3	2352
	500	5	"	"	"	47·9	2237
	250	"	"	"	"	"	"
3	1400	7½	6	6	3·0	55·2	2593
	1000	6	"	"	"	53·1	2523
	500	"	"	"	"	50·0	2413
	250	"	"	"	"	"	"
4	1400	7½	6½	6½	5·0	65·6	3115
	1000	6½	"	"	"	63·0	3025
	500	"	"	"	"	"	"
	250	"	"	"	"	"	"



PLAN

TRENCH

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ATOMIC WEAPONS RESEARCH ESTABLISHMENT

REPORT No. T 47/57

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OPERATION BUFFALO

Target Response Tests

(Co-ordinator: E. R. Drake Seager)

The Effect of Earth Covers on the Resistance of Trench Shelter Roofs

A. J. Wood

O.W.D.
REGISTRY

UKR2.67

A.W.R.E.,
Aldermaston, Berks.

August, 1957

[redacted]

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1. Introduction

To obtain information on the effect of earth cover on the resistance to blast of trench shelter roof slabs a series of targets was exposed to Round 1 of Operation Buffalo, which had a total energy yield of about 20 kilotons. These targets were both full-scale and model scale. The model targets were 1/10th full-size, and were included to provide information on the effects of a Megaton weapon.

The slabs were designed by the Ministry of Works [Refs. 1 and 2], the overall dimensions of the full-scale panels being 21 ft x 8 ft x 6 in., and of the 1/10th scale panels 25 in. x 9.4 in. x 0.6 in. The discrepency between the full-size and model dimensions was caused by differences in the widths of the bearing surfaces; for the full-size slabs this surface was 6 in. all round, giving a clear span of 20 ft x 7 ft, whereas the model slabs were supported on bearing surfaces only 0.5 in. wide, giving a free span of 24 in. x 8.4 in. The corners of the slabs were held down (with reinforcing rods and concrete on the full-size slabs, and special steel clamps on the model slabs) for a length equal to 1/10th of the free span in each direction.

Eight full-size slabs were to be cast, six to be placed in the field, the remainder to be tested statically. Of the six in the field three were at ground level and the other three were buried to give 5 ft of earth cover. Forty-eight models were cast, 36 of which were exposed in the field, 9 models being buried 12 in. below ground level, 9 buried 6 in. deep, 9 buried 3 in. deep and 9 placed level with the surface of the ground.

2. Object of the Investigation

2.1 Full-Size Slabs

The main purpose of this test was to study the effect of earth cover upon the resistance of a reinforced concrete slab to blast loading from a kiloton weapon, and to determine whether static tests could be used to predict performance under blast loading.

7. Comment on Results

7.1 Effect of Earth Cover on

The effect of the earth
in Table 1. It will be noticed th
no cover was destroyed, that at 27
being heavily damaged, was not dam
that the earth cover had a conside
14½ p.s.i. with no cover had a res
slightly greater than that with ea
the deflection of the panel with c
indicate that the cover had a grea
will be seen from Table 1 that the
ally tested panel was only about 2
the field tested panels of 3000 p.
has been shown that an increase of
unreinforced panel 1 in. thick giv
1½ p.s.i. It is considered that t
trench shelter roof panel would be

7.2 Effect of Earth Cover on

Table 2 shows that all p
than 22 p.s.i. At 18 p.s.i. the c
6 in. of earth cover, and these w
with 3 in. of cover exposed at 14
exposed to pressures equal to or l

The damage sustained by
which full-scale slabs should expe
weapon in the kiloton range. The
nearer distances will have a small

The figures given for t
necessarily a reliable guide to th
included as the only real indicat
at all since only four of the sur
as can be seen from the photograp
those cases was very light.

8. Conclusions

The test showed that the ear
fact have the effect of reducing
although the effect was not so ma
damage sustained was, on the whol
scale, which, since the ranges fo
static and blast tests, indicates
predicting performance under blas

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Damaged A/fire
1984.
Y. McA.

[redacted]

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UK true land surface burst Buffalo-2, Maralinga

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OPERATION BUFFALO

The Radiation Survey of Ground Deposited Radioactivity

J. J Rae

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August, 1957

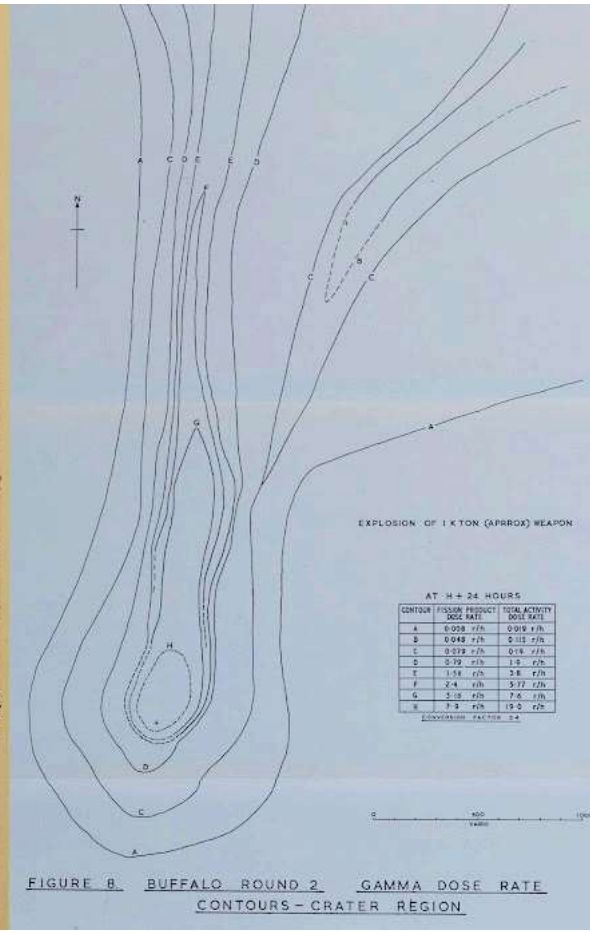
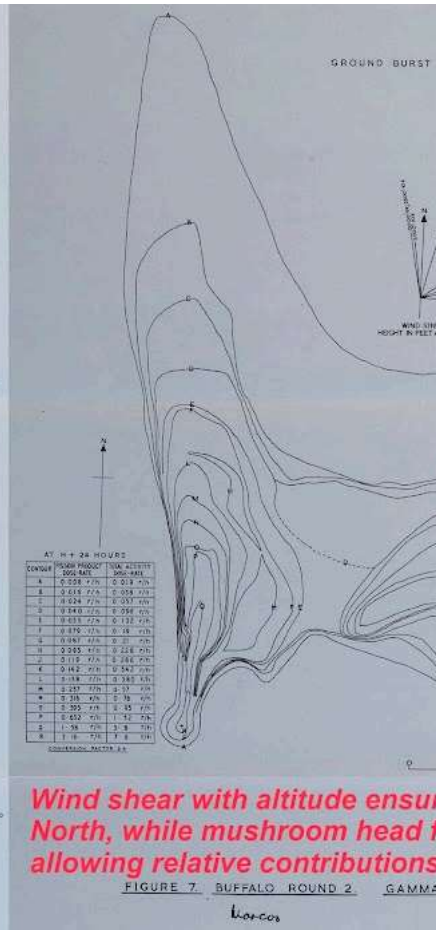


FIGURE 8 BUFFALO ROUND 2 GAMMA DOSE RATE CONTOURS – CRATER REGION



**Wind shear with altitude ensu
North, while mushroom head
allowing relative contributions**

FIGURE 7 BUFFALO ROUND 2 GAMMA

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Downwind fallout areas from ground-burst megaton explosions

1. Information available in 1958

(i) The U.S. publication "The Effects of Nuclear Weapons" paragraphs 9.71 to 9.73 — GLASSTONE, 1957 edition

(ii) The U.S. publication "Capabilities of Atomic Weapons" fig. 4-4B, prepared by the Armed Forces Special Weapons Project; originally highly classified but now downgraded to "Confidential". This is at present under revision. — TM 23-200

A comparison of the various figures for a few dose rates is given in Table 1.

Table 1

Areas of downwind contamination (sq. miles)

NOTE: at 1 Mt, TM 23-200 Capabilities gives half Glasstone's E.N.W. fallout areas for 300-3000 R/hr at 1 hr

Dose rate contour @ H + 1 r.p.h.	1 MT; 100% fission		10 MT; 100% fission	
	(i) E.N.W. & U.K. Nuclear Weapons	(iii) Capabilities	(i) E.N.W. & U.K. Nuclear Weapons	(iii) Capabilities
3000	54	27	540	650
1000	210	110	2100	1750
300	650	350	6500	5000
100	1500	1100	15000	18500
30	3300	3500	33500	43000

Difference

N.B. The Capabilities data is approximately summarised in the expression

$$AR = \frac{10^5}{P^{-1.2}}$$

NOTE: for 20 kt fission yield, Capabilities TM 23-200 Fig. 4-14A gives 80% of the fallout areas in E.N.W. 1957 for 10-3000 R/hr at 1 hr

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Where A = area in sq. miles
R = dose rate contour in r.p.h.
P = power of weapon in MT

(b) The fallout pattern (Triffet's Tewa

This is Fig. 7 on page 80 of the 1959 stated to be for a 5 MT explosion. No fis as the whole of the article in which this 50% fission yield weapon, it seems reasona also intended for a 50% fission yield. (Re

The 25 r.p.h., 100 r.p.h. and 500 r.p and the areas compared with those from Cap

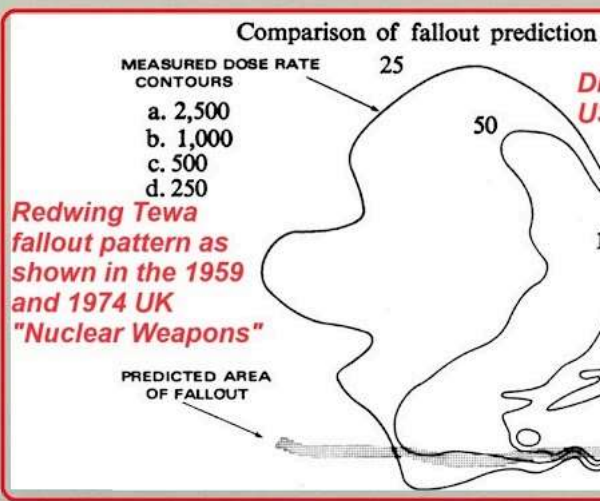
Table 3

Areas of downwind contamination

Comparison of U.S. fallout pattern

Dose rate contour @ H + 1 r.p.h.	5 MT: 50% Redwing-Tewa Fig. 7. p.80 1959 Hearings
500	2,000
100	6,000
25	30,000

Comparison of fallout prediction



Redwing Tewa fallout pattern as shown in the 1959 and 1974 UK "Nuclear Weapons"

November 1960.

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SCIENTIFIC ADVISERS' BRANCH

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CD/SA .87...

Some recent information from the United States about fall-out from ground burst megaton weapons

1. Time of first arrival and duration

Data on these two aspects of fall-out have been given to us recently in two papers, one by Dr. Frank Shelton, Technical Director of the U.S. Armed Forces Special Weapons Projects entitled "Physical Aspects of Fall-out" and the other by E. A. Schuert of the U.S. Naval Radiological Defence Laboratory, in Report TM 139 - "A fall-out forecasting technique with results obtained at the Eniwetok Proving Ground".

On arrival times Dr. Shelton states "Fall-out from a detonation of the order of a megaton will begin to arrive on the ground over an area the order of the size of the visible cloud, almost like a blanket at about 15 to 20 minutes for a large yield surface burst on an island or presumably on land. Fall-out from a shot of the order of a megaton on a barge in water will begin to arrive at the surface at about 30-40 minutes".

[N.B. For the land or island shots the average particle size is greater than for water shots, and therefore the particles fall more quickly.]

"The above fall-out is exclusive of the vicinity of the crater and throw-out."

On fall-out duration, Dr. Shelton states "The radiation rate will build up on the ground under the cloud and reach a peak in about 100 minutes for a detonation of the order of a megaton".

With regard to any possible contamination hazard to people exposed in the open during this period, theoretical calculations and trials experience alike have shown that this is small compared with the hazard of the external gamma radiation from the surroundings and can in fact be made negligible provided that a few simple precautions (wearing of gloves, shaking or brushing down or removal of outer garments, and washing of the face) are taken at the first opportunity.

2. Upwind Contamination

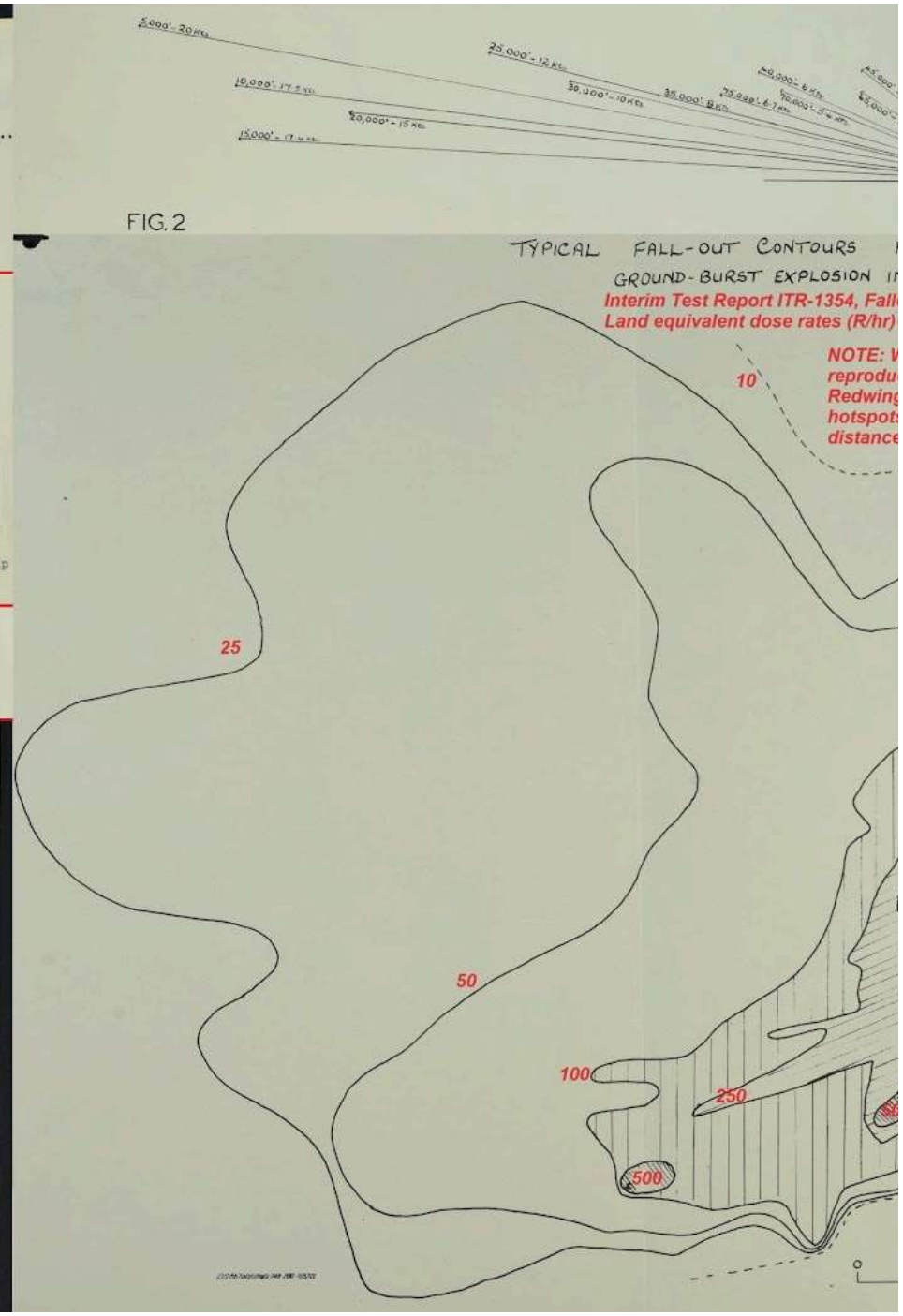
The advice given by Scientific Advisers' Branch to the Working Party was based on information exchanged at a conference early in 1954 which gave a dose-rate of 10 r.p.h. at H + 1 at a distance 9 miles upwind of ground zero. A corresponding contour of 50 r.p.h. at H + 1 at 6 miles was quoted publicly by Govr. Val Peterson. Having in mind the date of the conference it is obvious that the only experience in the U.S. of megaton explosions at that time was of the one in November 1952.

Some time after the megaton explosion of March 1954 we were told that the U.S. were now convinced that contamination in the damaged area was heavier than this and it was for this reason that we suggested the inclusion of the "very heavy" contours in the chart which was circulated with the Working Party's Report and also suggested a modification of the script of the new H bomb film to indicate that the green line (3 r.p.h.) at H + 1 might be anywhere from 5 to 20 miles upwind of ground zero.

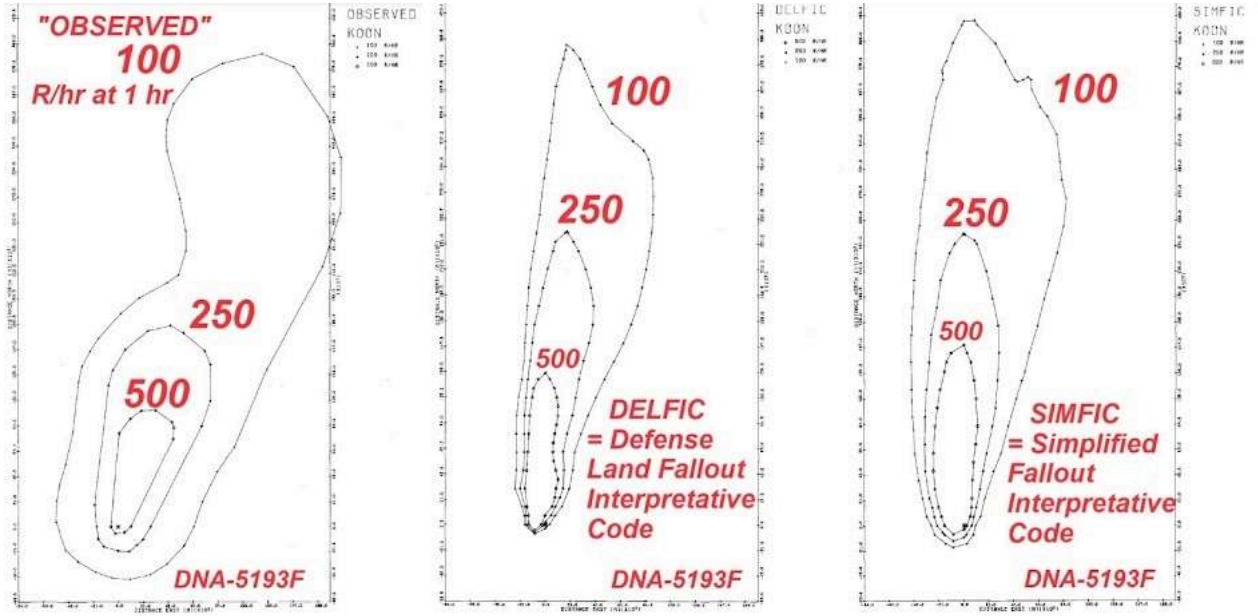
We are now confronted with the new U.S. book "The Effects of Nuclear Weapons", which seems to indicate that the contamination is greater still, an indication which must be examined in detail.

Using the data in Table 9.71 for a 1 MT explosion, and scaling up to a 10 MT explosion by means of the principles enumerated in paras. 9.74 to 9.77 we arrive at the rather startling result that the 10 r.p.h. contour at H + 1 extends 26 miles upwind (30 miles for the ground zero circle radius less 4 miles for the downwind displacement of the ground zero circle).

Firstly it is important to realise that in making this calculation it is necessary to extrapolate beyond the range of figures given in Table 9.71. This is because both distances and dose-rate values have to be scaled up according to the cube-root law, and in order to find the value corresponding to 10 r.p.h. for a 10 MT explosion we have first to extrapolate to the distance corresponding to a dose-rate of $\frac{10}{\sqrt[3]{10}}$ = 4.65 r.p.h. in the table



Note: the DELFIC, SIMFIC and other computer predicted fallout area comparisons for the 110 kt Bikini Atoll Castle-Koon land surface burst nuclear test are false since the distance scale of Bikini Atoll is massively exaggerated on many maps, e.g. in the Secret January 1955 AFSWP "Fall-out Symposium", the Castle fallout report WT-915, and the fallout patterns compendium DASA-1251! The Western side of the Bikini Atoll reef is at 165.2 degrees East, while the most eastern island in the Bikini Atoll, Enyu, is at 165.567 degrees East: since there are 60 nautical miles per degree by definition, the width of Bikini Atoll is therefore (165.567-165.2)(60) = 22 nautical miles, approximately half the distance shown in the Castle-Koon fallout patterns. Since area is proportional to the square of the distance scale, this constitutes a serious exaggeration in fallout casualty calculations, before you get into the issue of the low energy (0.1-0.2 MeV) gamma rays from neutron induced Np239 and U237 in the fallout enhancing the protection factor of shelters (usually calculated assuming hard 1.17 and 1.33 MeV gamma rads from Co60), during the sheltering period of approximately 1-14 days after detonation.



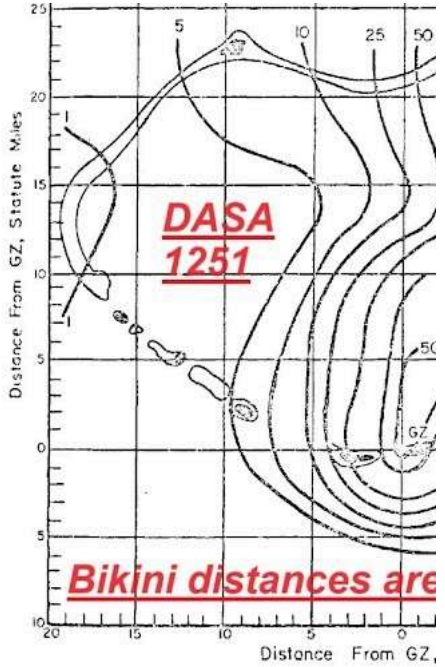


Figure 48. Operation CASTLE – On-site dose rate

"... most of the [100 kt fission, 110 kt total yield, Castle-] Koon pattern area was covered by an array of fallout collection stations, so this pattern is probably reasonably accurate."
- Hillyer G. Norment, "SIMFIC: A Simple, Efficient Fallout Model," DNA 5193F, page 29.

Above: FAKE distan
Atoll 110kt surface b
fallout map: 500 R/h
6 miles (10 km) long

Observed/DELFIC/SIMFIC

Contour (Roentgen hr^{-1})	Area (km^2)	Hotline Length (km)
500	32.0/26.0/44.0	10.2/12.5/14.9
250	122/87.3/116	17.3/24.2/24.1
100	550/261/374	41.0/39.5/41.6

FAKE FAKE

Problem: the "probably reasonably accurate" Castle-Koon "observed" pattern is based on a MASSIVELY exaggerated map scale in Operation Castle fallout report WT-915 (also in DASA1251)
Other surface tests were very low yield or else over open ocean!!

The Western side of th
165.2 degrees East, wh
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degrees East: since th
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Bikini Atoll is therefore
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AWRE T 10/60

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ATOMIC WEAPONS RESEARCH ESTABLISHMENT

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AWRE REPORT No. T 10/60

On the Resuspension in the Atmosphere of Radioactive or Other Fine Particulate Material Deposited on the Ground

K. Stewart

A.W.R.E., Aldermaston, Berks.

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November, 1960

Report: AWRE-T-10/60
UK National Archives: ES 5/284

TABLE 1

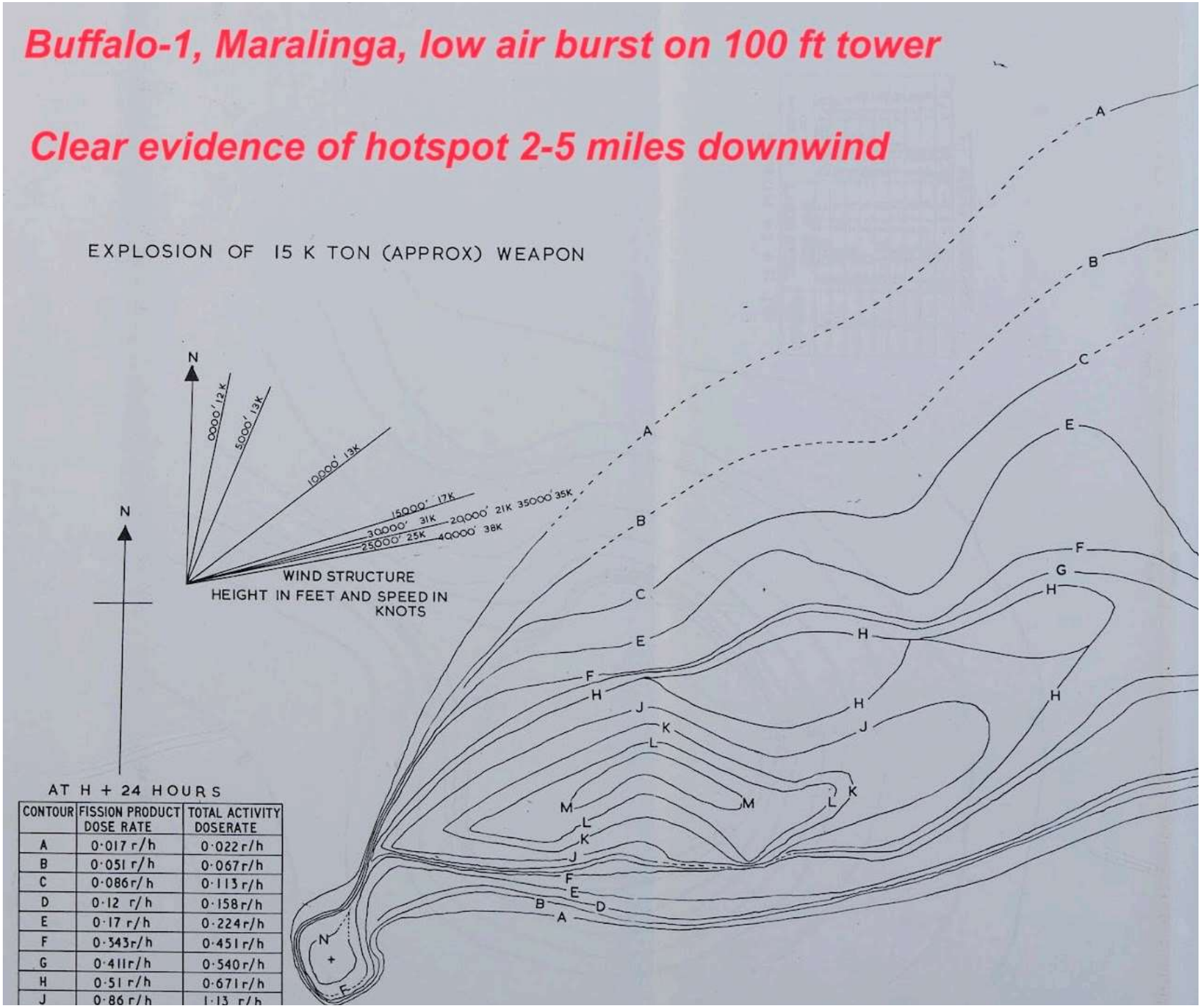
Summary of Experimental Results on Resuspension of Activity

Trial	General Circumstances of Measurement	Range
Hurricane **25 kt ship**	Sample of airborne material obtained without artificial disturbance of ground surface (12 results)	1×10^{-6} to 8×10^{-8} but 10 values lie betwe 0.47×10^{-6} to 1.6×10
Totem **8-10 kt bursts on 100 ft towers**	Random samples collected in region of T1 crater in absence of artificial disturbance of the ground (9 results)	1×10^{-6} to 1×10^{-8}
	Surveys on C and D roads of grid - no artificial disturbance of ground surface (14 results, with 6 indefinite but measured values all $< 2 \times 10^{-7}$)	1.5×10^{-6} to 1×10^{-8}
	Surveys on "Dingo" road - samples collected at back of Landrover in motion (21 results, 10 of which 2 were obtained over the tailboard) on the 4th and 7th days after the first test	On 4th day: 0.8×10^{-6} On 7th day: 0.6×10^{-6} On 7th day: 1.6 and 3.1 at tailboar
	Survey of road to Site C (10 results) on 1st and 2nd days after the second test. Of these, 3 are indeterminate but less than 2×10^{-8} and only 2 are $> 1 \times 10^{-6}$	1×10^{-8} to 2×10^{-6}
Buffalo	Sample collected during an instrument recovery sortie in which the sampler, a cascade impactor, was carried in the driving compartment of a Landrover for part of the time and was outside the stationary vehicle near the working party for the remainder Round 1 (H + 18 hr) **15 kt on 100 ft tower** Round 2 (H + 5 hr) **1.5 kt true surface burst**	2.5×10^{-8} but only abo 6.4×10^{-8} but only abo
Civil Defence Trial at Falfield	Representative brick/plaster dust sample contaminated with I-131 and distributed on greater amount of dust and used during two realistic Civil Defence, bomb-site, recovery trials. 1. Enclosed Space 2. Open Area	**Dust loading: 110** **Dust loading: 10 n**
Some representative results obtained during Health Physics surveillance of minor experimental trials at Maralinga	1. Uranium (1957) sample collected immediately downwind of crater at: 1 ft above ground 2 ft above ground 1 ft above ground (dust stirred up)	
	2. Plutonium (1959 Vixen) sample collected at: 1 ft above ground: - dust created by vehicles - dust created by pedestrian	

Type of Particulate Material	Terminal or Deposition Velocity, m/sec	K, m^{-1}	Estimated Half-Life for Contaminated Zone (days) for: K 1×10^{-4}	K 1×10^{-5}	K 1×10^{-6}	Theoretical Downwi Contamination at Point P, $\mu g/m^2$
Very fine dust) diameter ≤ 1 μ)	0.001 0.002	30 f 30 f	2.5 2.6	25 26	250 260	
Fine dust up) to about 20 μ)	0.01 0.02	26 f 23 f	2.9 3.4	29 34	290 340	500
Coarse dust,) fine sand ~ 50μ)	0.1 0.2	10 f 5 f	16 160	160 1600	1600 16,000	160 13

Buffalo-1, Maralinga, low air burst on 100 ft tower

Clear evidence of hotspot 2-5 miles downwind



CONTOUR	FISSION PRODUCT DOSE RATE	TOTAL ACTIVITY DOSERATE
A	0·017 r/h	0·022 r/h
B	0·051 r/h	0·067 r/h
C	0·086 r/h	0·113 r/h
D	0·12 r/h	0·158 r/h
E	0·17 r/h	0·224 r/h
F	0·343 r/h	0·451 r/h
G	0·411 r/h	0·540 r/h
H	0·51 r/h	0·671 r/h
J	0·86 r/h	1·13 r/h

K	1·2 r/h	1·58 r/h
L	1·37 r/h	1·8 r/h
M	1·68 r/h	2·21 r/h
N	10·29 r/h	13·53 r/h

CONVERSION FACTOR 1·3



FIGURE 4. BUFFALO ROUND 1. GAMMA DOSE RATE CONTOURS.

One Tree

Buffalo-4, Maralinga, low air burst on 100 ft tower

EXPLOSION OF 15 K TON (APPROX) WEAPON

Clear evidence of hotspot 1-3 miles downwind

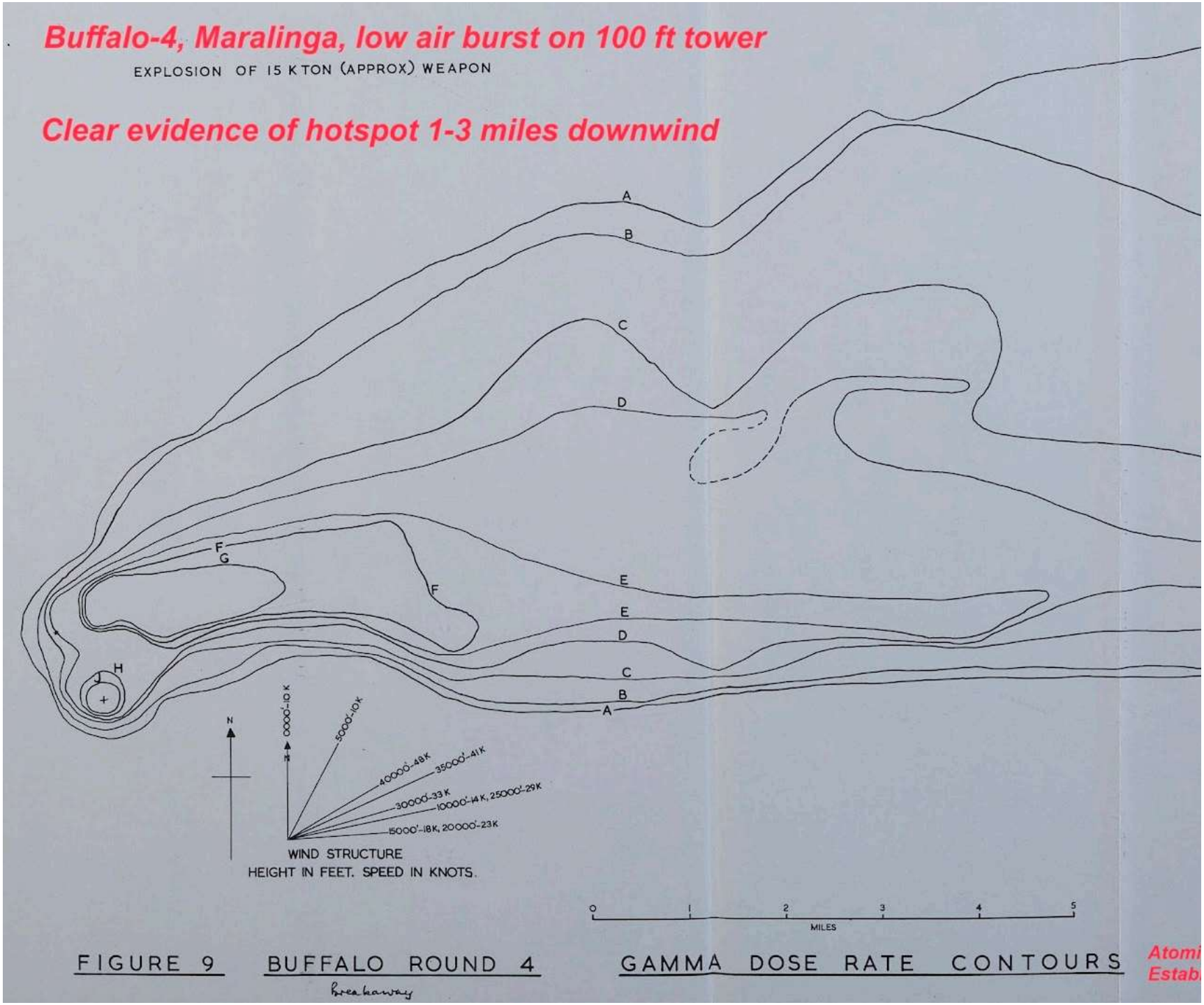


FIGURE 9 BUFFALO ROUND 4 GAMMA DOSE RATE CONTOURS

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BY AWE ALDERMASTON.

ATOMIC WEAPONS RESEARCH ESTABLISHMENT

REPORT No. T 4/57

OPERATION BUFFALO

Target Response Tests

(Co-ordinator: E. R. Drake Seager)

The Decontamination of Radioactively Contaminated Drinking Water in the Field

Maj. D. B. B. Janisch, R. A.
et al.

[redacted] LIBRARY COPY
UK UNCLASSIFIED
[redacted]
UKRL 52

A.W.R.E.,
Aldermaston, Berks.
July, 1957

3.1 Production of Contaminated Water

An attempt was made to collect fall-out from Round 1 (tower burst) and the top layer of a few square yards of the soil in the fall-out area was collected so that there was sufficient activity present in the sample. On sorting this soil, almost all of the activity was found to be concentrated in a small number of tiny glass-like spheres obviously consisting of fused sand. These were of course found to be almost insoluble in water; facilities were not easily available, neither was it considered expedient, to conduct the rather elaborate chemical processes necessary to bring this material into a neutral aqueous solution. Because of this relative insolubility, drinking water taken from this area would probably have been acceptable from the radioactive point of view*.

In order to obtain samples of contaminated water, the filter papers from one of the cloud-sampling aircraft in Round 3 (air burst), were used. These were macerated, and the soluble portion of the fission products leached out. The samples were collected shortly after F hour; the leaching out took place during D + 3, i.e., about 70 hours after burst, and the water was treated on D + 4, i.e., 92 to 100 hours after burst.

* i.e., by the accepted military emergency standard, of being fit for drinking up to 2½ litres/man/day for 10 days.

TABLE D1

Sample	Hardness as $CaCO_3$, p.p.m.	μc per litre at D + 13			
		Gross β γ	^{131}I	^{89}Sr	^{140}Ba
Untreated (Sample C)	196	0.887	0.107	0.0177	0.052
3rd. gallon after one treatment (C_t)	1.9	0.087 (90%)	0.074 (31%)	0.00025 (99%)	0.0046 (91%)
3rd. gallon after two treatments (C_{tt})	2.5	0.030 (97%)	0.0217 (80%)	<0.00001 (> 99%)	0.000113 (99.8%)

NOTE: Percentages in brackets indicate percentage removal represented by the entry immediately above.

TABLE D2

Results of Laboratory-Scale Decontamination of Water

Sample	μc per litre at D + 7			
	Gross β γ	^{131}I	^{89}Sr	^{140}Ba
Influent	0.274	0.032	0.013	0.0249
Effluent	0.112	0.025	< 0.0012	0.00025
Percentage removal	59	22	> 91	99

NOTE: iodine-131 is diff
using earth filtering or e

Los Angeles Time

★ SUNDAY, DECEMBER 18, 1960 Section

MAX LERNER:

A Look at the Nuclear Ho

I have been reading a hair-raising, terrifying, sober and important book. It is "On Thermonuclear War," by Herman Kahn, which has just been published (Princeton), and which may well turn out to be the most important political-military work of our era.

He feels that much of the "liberal" thinking about nuclear weapons is soft, fuzzy and unnecessarily innocent. He is strongly against unilateral disarmament, against tender-mindedness in dealing with the Russians, against "excessive accommodation," against assum-

Hence, to propos should d First Stri not to u ventive w to convin that Amer itself only Russia's capable o

ing that trust and faith on our part will generate equal qualities on theirs.

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THE EVENING SUN, BALTIMORE, WEDNESDAY, JUNE 27, 1962 A 24

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Books In Review

A Prod To More Rational Thinking About Thermonuclear Policy

THINKING ABOUT THE UNTHINKABLE. By Herman Kahn, Horizon Press. $4.50.

Mr. Kahn contributes some substantial ideas on civil defense, based on his suspicion that destruction of an enemy population is far from a likely first aim; hence that there is a larger chance of city survival than has sometimes been thought, and hence justification for increased effort to save as many civilian lives as possible. This is not comparable to the real first priority objective, which is the full deterrence of war, but it is not negligible. The author sharply dis-

Against that large and well presented background Mr. Kahn lists the problems of the future. Most of them are extremely disagreeable but that does not disqualify them as subjects for sober thinking. He follows with a recital of fourteen possible national policies, ranging from a total renunciation of all violence to a pre-emptive war. In that gamut almost anyone can find his own favorite policy, with a certainty that he will be opposed by advocates of

counts some of the gloomiest predictions of total destruction and, while recognizing the tragedy of any civilian loss at all, insists that reduction of the loss is not only possible but wholly desirable.

—o—

all the other thirteen.

This granted, some thinking on the future is still desirable, particularly if Mr. Kahn is right in his estimate that the decade of the Sixties will prove more of a turning-point than any other period of the century. And if he is right in his reasonable belief that even lucky muddling-through would benefit by some guidance from systematic thinking.

MARK S. WATSON.

THE OBSERVER WEEKEND REVIEW, MARCH 3, 1963

Thermonuclear bogy

By John Strachey

THINKING ABOUT THE UNTHINKABLE. By Herman Kahn. (Weidenfeld and Nic

AS Mr. Michael Howard, the military historian, is accustomed to insist, the three great "scandalisers" of the modern epoch have been Machiavelli, Clausewitz and Marx. What is it, he asks, that these three so apparently unrelated thinkers have in common which has made them bogymen to the general public? His answer is that these three men, to a greater extent than anyone else (except perhaps Hobbes?), thought in terms of power and power relationships. They seemed, though this was by no means exclusively the case, to ask, not what ought to be done, but what will happen, given the existing power relationships in the world.

Now people apparently cannot easily bear this approach. Power is so terrible and ominous a thing that

we still have deep repressions about its discussion. "Mankind," as Mr. Eliot has it, "cannot bear very much reality." And apparently it can bear hardly any reality at all over this question of power.

✦ ✦

It is instructive to observe that exactly the same fate has overtaken one of the principal analysts of the conflicts of the present nuclear age, Mr. Herman Kahn.

Nuclear Gamesmanshi

EVER since the publication of "On Thermo-nuclear War," Herman Kahn has been either denounced as a warmonger or praised as a military realist.

THINKING ABOUT THE UNTHINKABLE, by Herman Kahn. — Weidenfeld and Nicolson, London. 254 pp. 31s.

There seems to be no middle view of him. For someone who claims to be dispassionately devoted to the study of modern strategy, he has aroused strange passions. Bertrand Russell has virtually labelled him a sadist; but John Strachey, the British Labour M.P. who is among his admirers, compares him with Machiavelli, Clausewitz and Marx as an analyst in power.

His supporters hold that right or wrong, good or bad, and to be investigating it simply as a possible phenomenon.

Mr Kahn naturally supports his supporters and maintains that he should not be judged on moral grounds.

But the fact remains that his work is deeply coloured by moral commitment. He is committed to the political stance of the West, to the idea of survival and recuperation after a holocaust, to belief in war as an instru-

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w war any more than, for war is thinkable not only schools as the pupil
a instance, Machiavelli can be in the practical sense that its in corridors and
h said to advocate the use of results can be calculated, desks during the p
it the political manoeuvrings but in the moral sense that, air-raid drill: "Re
a described in "The Prince." under certain circumstances, children—you can
v- In other words, Mr Kahn is it could be desirable. His new book of
e supposed to stand outside ond thoughts on the
d the moral question of To him, such a war is of how wars m
f whether mass annihilation is manageable, not only in the caused and might be

The Gazette and Daily, York, Pa., EDITORIAL Tuesday Morning, March

The Morality Of The Rand Corporation's 'Thinkers'

How We Can 'Win' A Thermonuclear Conflic

By JAMES R. NEWMAN

Most Effective Posture

Do we need civil defense? The important thing is to fit civil defense into the large strategic program: "Counterforce" and "Credible First Strike Capability," to make sure we gain the most effective "posture" for "Preattack and Postattack Coercion."

Kahn summarizes his general notion of the most desirable "posture." We should have, he says, "at least, enough capability to launch a first strike in the kind of tense situation that would result from an outrageous Soviet provocation, so as to induce uncertainty in the enemy as to whether it would not be safer to attack us directly rather than provoke us. The posture should have enough of a retaliatory capacity to make this direct attack unattractive."

The Gazette and Daily, York, Pa., EDITORIAL Friday Morning, June 22, 1962

Too Much Thinking About The Unthinkable

The Military Scientists

By JOSEPH BARRY

(Special to The Gazette and Daily)

Paris—Sometime this month America will explode a megaton bomb in the Pacific stratosphere and Herman Kahn will publish another book on thermonuclear war, "Thinking the Unthinkable."

The prospect of the first has upset, of all people, our best allies, the British. The publication of the second, following on the heels of Kahn's first book, which an English science writer has called "thermonuclear pornography," seems bound to do the same.

A scientific friend, who has seen an advance copy of the Kahn opus, writes in a letter that some unkind reviewer will re-title it, "Reading the unreadable," though he himself believes it's worth the struggle.

As for America's explosion of a hydrogen bomb with the force of 1,000,000 tons of TNT, in order to test its effect on the Van Allan radiation belt, no voice has been more irate than that of Sir Bernard Lovell, head of the Jodrell Bank Radio Astronomy Station, on which, ironically, America depends for the tracking of its satellites.

"These proposals to make nuclear explosions in space," said Sir Bernard early in May, "arise from a small group of military scientists, unknown and unidentified to the world at large, who have persuaded their masters to make a series of huge gambles under the guise of defensive necessity."

"has the right to change the environment in any significant way without prior international study and agreement."

Then he concluded with this crushing contradiction: "The U.S. has done reasonably well in this respect by giving at least full advance announcements."

Prof. Lovell several days ago pointed out the obvious fact that "advance announcements" do not constitute "prior international study and agreement." Moreover, he reaffirmed his opinion that the American test might very well be a "sledge-hammer blow at the radiative environment of the earth."

The Morality Of Kahn

What puzzles the British professor is the American scientists' failure to act according to their own professed principles of international consultation and scientific responsibility. For him it raises the moral question of scientific decisions, at least insofar as they affect the world at large.

Another Britisher, the scientific correspondent of The Observer, mused (early in May, too) about the morality of Herman Kahn, who, he said, "blandly discusses theoretical situations in which 20,000,000 casualties might seem 'acceptable,' world-destroying 'Doomsday Machines' as ultimate weapons in the weird calculus of deterrence (etc., etc.)"

To satisfy his own curiosity, the Britisher visited Herman Kahn in his home on the Hudson, where "he lives a thoroughly non-belligerent life." The writer found him somewhat changed, "become more impress-

searchers as to where each drew
"At one extreme, Kahn decided,
Hindu who draws the line at killi
At the other, he quotes three scie
leagues, 'all bachelors,' who woul
the mankind-destroying Doomsda
a possible deterrent weapon, 'but
the line of a galaxy-destroying m

Kahn himself, you might be
know, draws the line at destroy
with thermonuclear weapon
shouldn't do it," the British repo
he says.

Possibly this last principle has
place in Kahn's new book. If so, s
gap between the pacifist and
game theorist, a considerable step
taken toward reconciliation of mo
cold reason.

"This rapprochement is no
place gracefully," Paul Weidling
eer, physicist and friend, has jus
me toward the end of an eight-p
tightly analyzing both camps. "In
opposing parties seem to be br
gether with their heels dragging a
selves screaming. Namecalling, qu
of context and distortions are de
this battle.

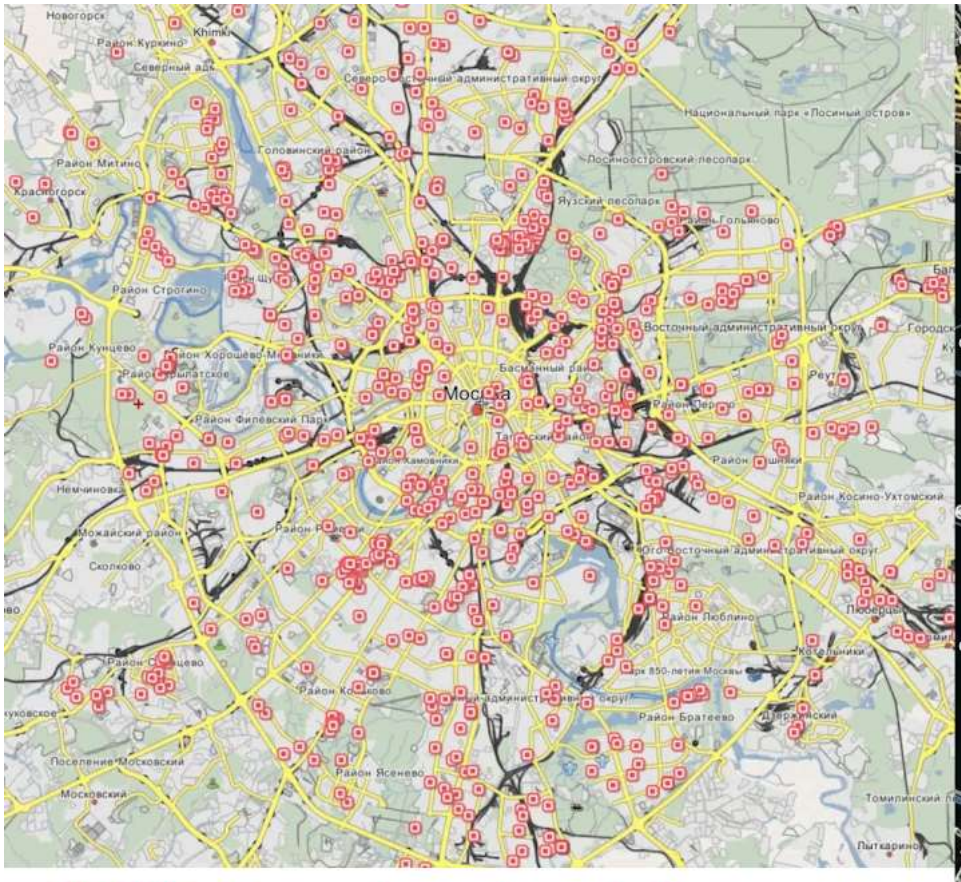
"Equally important is that run
a similar conflict are clearly he
the other side of the iron curtain.
hopeful signs. In more ways tha
may find that the realpolitik of
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perative of the moralists turn o
reconciliable in a marriage of con

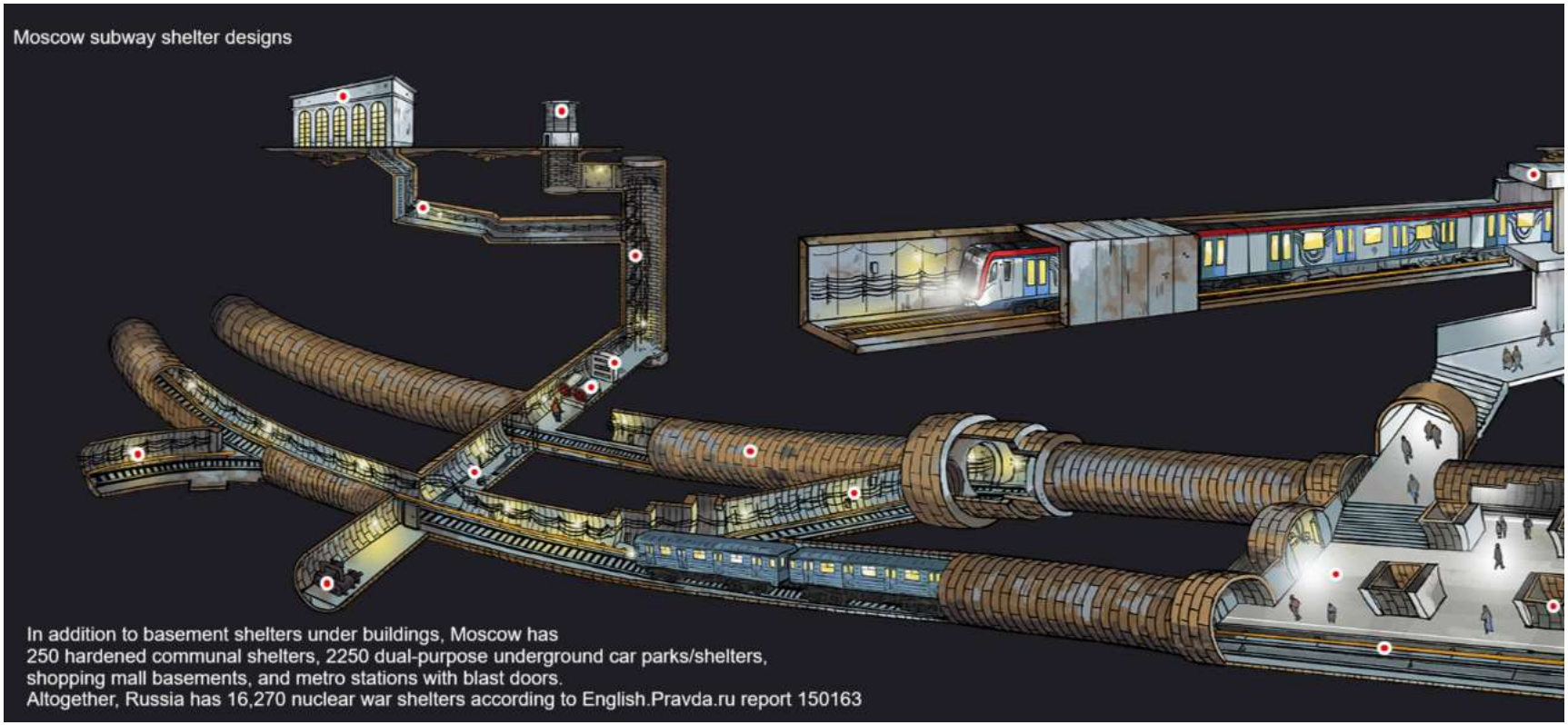
Early this month, American Professor S. Fred Singer surfaced from anonymity and replied to the British critic. In effect he claimed there would be no great damage done—and if there were, it would not be permanent. "No government," he agreed.

ed by moral arguments; first you see them, then you accept them, then you believe them.'"

The weirdest story he heard from Kahn was the latter's inquiry among Rand re-

Weidlinger, who is a consultar Defense Dept., concludes: "In this battle of ideas between both c on both sides of the iron curtain encouraged. The least we may ga at most, a second chance . . ."


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Район Замоскворечье
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Район Красносельский
Район Мещанский
Район Тверской
Район Таганский
Район Пресненский
Район Якиманка
Район Замоскворечье
Район Хамовники


Moscow subway shelter designs
In addition to basement shelters under buildings, Moscow has
250 hardened communal shelters, 2250 dual-purpose underground car parks/shelters,
shopping mall basements, and metro stations with blast doors.
Altogether, Russia has 16,270 nuclear war shelters according to English.Pravda.ru report 150163

Прошу рассмотреть разработанный Министерством путей сообщения технический проект на работы по оборудованию Московского метрополитена под массовое убежище, и свои предложения представить в Совет Министров СССР.

Срок 20 дней.

8/1-53 г. И. Молотов

podzemnayamoskva.ru

Министр
путей сообщения
С С С Р

1/XII 1952 г.
№ 007806пр

Копия
Сов.Секретно

В СОВЕТ МИНИСТРОВ СОЮЗА ССР

РАССЕКРЕЧЕНО

Во исполнение Постановления Совета Министров СССР от 10/X1 1952г. № 2699-1007сс Министерством путей сообщения разработан и представляется на утверждение технический проект и генеральная смета на спецустройства ПВО по приспособлению и оборудованию Московского метрополитена под бомбо и газоубежище для населения.

Проект предусматривает оборудование линии метрополитена по 1 этапу работ: защитно-герметическими и герметическими затворами, фильтровентиляционными установками, санитарно-техническими узлами, водоснабжением, энергоснабжением, аварийным освещением, связью, радиовещанием и защитными тюфяками.

Под убежище используются тоннели и станции имеющие естественную защитную толщу грунта от однократного действия ФАБ-2500, по следующим линиям метрополитена глубокого заложения:

Кировско-Фрунзенский диаметр	- 2 км
Горьковско-Замоскворецкий диаметр	- 9,6 км
Покровско-Арбатский "	-12,0 км
Кольцевая линия	-19,3 км

Общее протяжение трассы линии Метрополитена глубокого заложения используемых под массовое бомбо и газоубежище составляет 42,9 км.

Суммарная вместимость тоннелей и станций по всем линиям - 822 тыс.человек.

Для защиты тоннелей и станций от удара взрывной волны и от проникания ОВ предусматривается установка защитно-герметических затворов.

I ask you to consider the technic
by the Ministry of Railways for work
equipment of the Moscow Metro for m
and submit your proposals to the Co
of Ministers of the USSR.

The term is 20 days.

8/1-53 g. И. Молот

Minister
of Railways S
S S R

1/XI 1952
№ 007806pr

TO THE COUNCIL OF MINI

In pursuance of the Resolution of the Coun
of 10/X1 1952. 2699-1007ss, the Ministry of Rail
and submitted for approval a technical project an
special devices 1VO for the adaptation and equipm
for a bomb and a gas shelter for the population.

The project provides for the equipment of t
1 stage of work: protective-hermetic and hermetic
ventilation installations, sanitary-technical units, wa
supply, emergency lighting, communications, radio
protective mattresses.

Tunnels and stations with a natural protectiv
a single action of FAB-2500 are used for shelter, a
deep-laid metro lines:

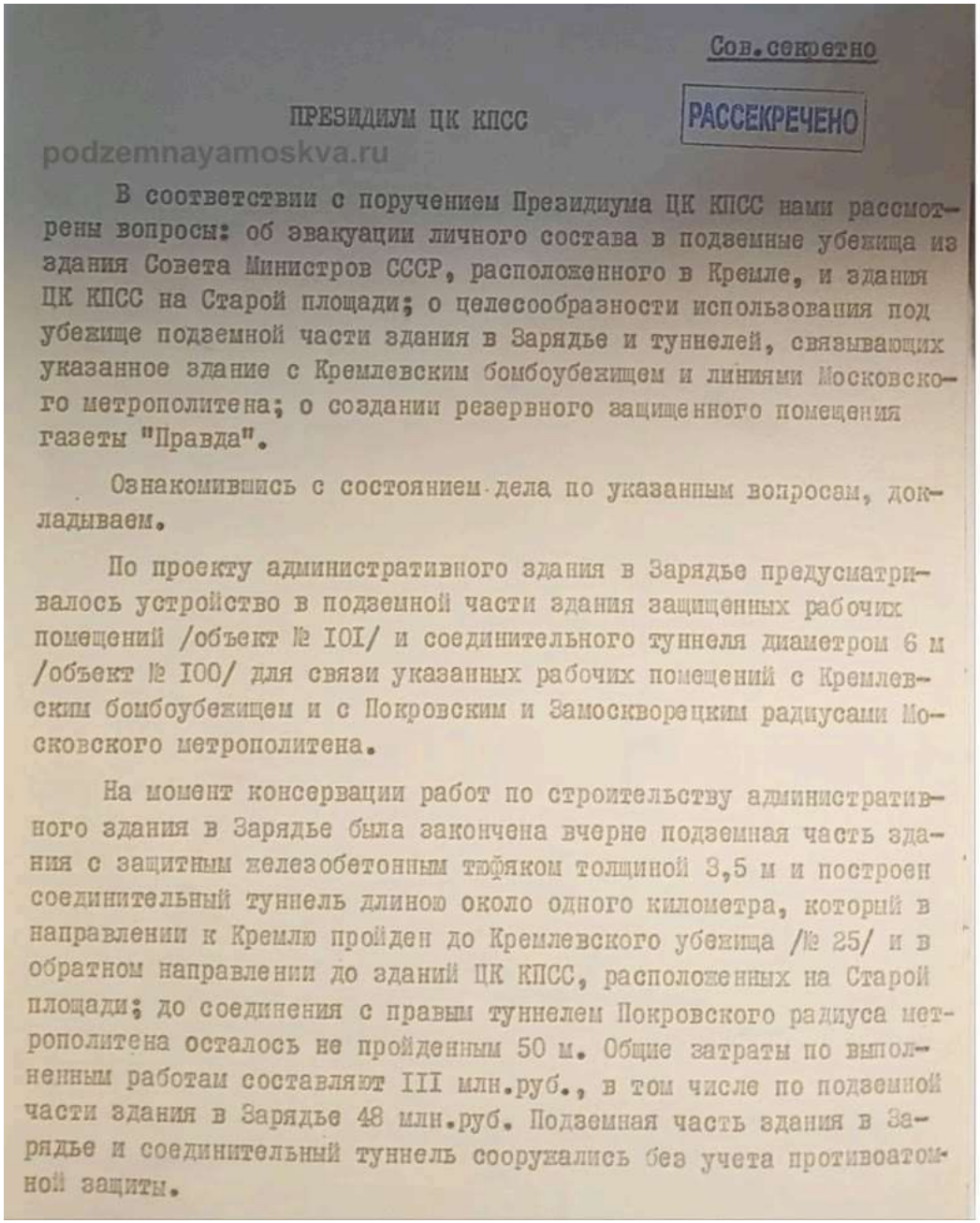
Kirovsko-Frunzensky diameter
Gorky-Zamoskvoretsky diameter
Pokrovsko-Arbatsky "
Ring line

The total length of the route of the deep-laid
used for mass bomb and gas shelter is 42.9

The total capacity of tunnels and stations
thousand people. [Hence, Russian metro shelt

To protect tunnels and stations from the impact of a
kania OV provides for the installation of protectiv

SOURCE: Dmitry Yurkov, http://podzemnaya



Сов.секретно

ПРЕЗИДИУМ ЦК КПСС

РАССЕКРЕЧЕНО

podzemnayamoskva.ru

В соответствии с поручением Президиума ЦК КПСС нами рассмотрены вопросы: об эвакуации личного состава в подземные убежища из здания Совета Министров СССР, расположенного в Кремле, и здания ЦК КПСС на Старой площади; о целесообразности использования под убежище подземной части здания в Зарядье и туннелей, связывающих указанное здание с Кремлевским бомбоубежищем и линиями Московского метрополитена; о создании резервного защищенного помещения газеты "Правда".

Ознакомившись с состоянием дела по указанным вопросам, докладываем.

По проекту административного здания в Зарядье предусматривалось устройство в подземной части здания защищенных рабочих помещений /объект № 101/ и соединительного туннеля диаметром 6 м /объект № 100/ для связи указанных рабочих помещений с Кремлевским бомбоубежищем и с Покровским и Замоскворецким радиусами Московского метрополитена.

На момент консервации работ по строительству административного здания в Зарядье была закончена вчерне подземная часть здания с защитным железобетонным тюфяком толщиной 3,5 м и построен соединительный туннель длиной около одного километра, который в направлении к Кремлю пройден до Кремлевского убежища /№ 25/ и в обратном направлении до зданий ЦК КПСС, расположенных на Старой площади; до соединения с правым туннелем Покровского радиуса метрополитена осталось не пройденным 50 м. Общие затраты по выполненным работам составляют 111 млн.руб., в том числе по подземной части здания в Зарядье 48 млн.руб. Подземная часть здания в Зарядье и соединительный туннель сооружались без учета противоатомной защиты.

TRANSLATION

PRESIDIUM OF THE CENTRAL COMI

In accordance with the instructions of the Pres of the CPSU, we have considered the following personnel to underground shelters from the bu Ministers of the USSR, located in the Kremlin, a Committee of the CPSU on the Old Square; on underground part of the building in Zaryadye a connecting the specified building with the Krer of the Moscow Metro; on the creation of a back newspaper Pravda.

Having familiarized with the state of the case o

According to the project of the administrative b a device in the lower part of the building of pro 101/ and a connecting tunnel with a diameter of connecting these workrooms with the Kremlin Pokrovsky and Zamoskvoretsky radpuses of th

At the time of conservation of the construction in Zaryadye, the underground part of the buildi concrete mattress 3.5 m thick was completed i tunnel about one kilometer long was built, whic Kremlin, it was passed to the Kremlin Shelter / direction to the buildings of the Central Commi Old Square; 50 m remained to be passed befor tunnel of the Pokrovsky metro radius. The total amount to 111 million rubles, including 48 millio part of the building in Zaryadye. The undergrou Zaryadye and the connecting tunnel were cons account the anti-atomic protection.

Metro-2 SOURCE: Dmitry Yurkov at https://poc

Unofficial Russian **video on the secret Russian nuclear shelters from Russian Urban Exploration, titled "Проникли на секретный Спецобъект Метро!" = "We infiltrated a secret special facility of the Metro!**":

Проникли на секретный Спецобъект Метро! ФВУ



Диггеры залезли в Бункер Военного Завода! Нашли Ящ...



Гермозатвор



Как работает гермозатвор в метро. Станция "Универси...



Как работают Эскалаторы и Гермозатвор Метро! Изнут...



Диггеры Нашли Секретный Объект СССР! Подземная Л...



Saturday, September 30, 1978, The Evening Sentinel, Carlisle, Pa. — 15

Need shelter for fallout?

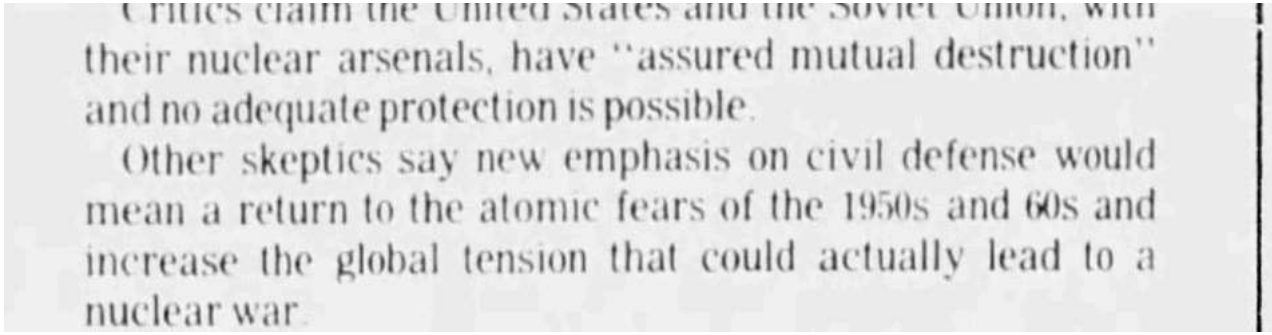
By DONALD C. BROWN JR.
United Press International

SOURCES SAY the Russians have built hardened bomb shelters under most large apartment buildings in Moscow, Leningrad and Kiev and have a contingency plan to evacuate the population of these cities to collective farms within 72 hours.

The Soviet civil defense system even includes an estimated 100 hours of instruction for Soviet school children on the effects of nuclear weapons and civil defense procedures.

But while American civil defense officials are pleased with the new attention their program is receiving from the Carter administration, not everyone believes it is necessary or wise to increase nuclear preparedness

Critics claim the United States and the Soviet Union, with



Critics claim the United States and the Soviet Union, with their nuclear arsenals, have "assured mutual destruction" and no adequate protection is possible.

Other skeptics say new emphasis on civil defense would mean a return to the atomic fears of the 1950s and 60s and increase the global tension that could actually lead to a nuclear war.

ABOVE: Moscow Metro and Metro-2 (secret nuclear subway) horizonially swinging blast doors take only 70 seconds to shut, whereas their vertically rising blast doors take 160 seconds to shut; both times are however far shorter than the arrival time of Western ICBMs or even SLBMs which take 15-30 minutes by which time the Russian shelters are sealed from blast and radiation! In times of nuclear crisis, Russia planned to evacuate from cities those who could not be sheltered, and for the remainder to be based in shelters (similarly to the WWII British situation, when people slept in shelters of one kind or another when there was a large risk of being bombed without notice, particularly in supersonic V2 missile attacks where little warning time was available).

Friday, October 2, 1959 Appleton Post-C

Governmental Responsibility

Evacuation, Shelters Two Wa

Save Lives During Nuclear A

Madison — There are only two ways to save lives in a possible nuclear war—evacuation or in shelters, about 100 men and women at a non-military defense seminar, sponsored by the Carnegie foundation, were told here Thursday.

shelters is unknown, but USSR propaganda indicates a shelter program is underway, he said.

It is no longer possible to clearly distinguish between war and peace, with the Russo-U. S. cold war and local military actions obscuring a

clear definit
said. In this
tary defense,
defense, becor
ing effort, he a

Non-military
application an
resources — fu
three areas to
ilian populatio
ed. Under res





LEFT: Mayakovskaya blast door

http://v2.travelark.org/travel-blog-entry/joelmeeker/42/1503596534

It's a bit surprising that this omits the fact that the Moscow Metro is a nuclear bomb shelter. There are huge blast doors everywhere and at many stations it's significantly deeper than Paris of New York.It's a bit surprising that this omits the fact that the Moscow Metro is a nuclear bomb shelter. There are huge blast doors everywhere and at many stations it's significantly deeper than Paris of New York.

- https://news.ycombinator.com/item?id=27264521https://news.ycombinator.com/item?id=27264521








21.11.2011


08.12.2011




14.12.2011





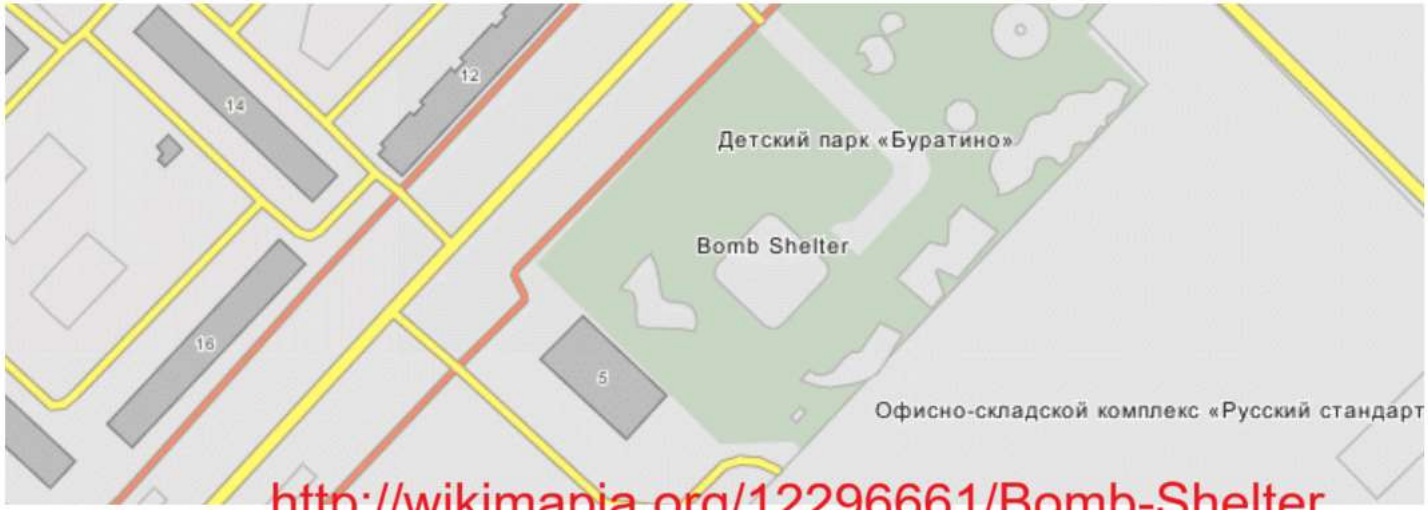
Mosc
nuclea
shelte

Nearby cities:

Coordinates: 55°38'29"N 37°22'12"E

http://wikimapia.org/16031767/Bomb-Shelterhttp://wikimapia.org/16031767/Bomb-Shelt



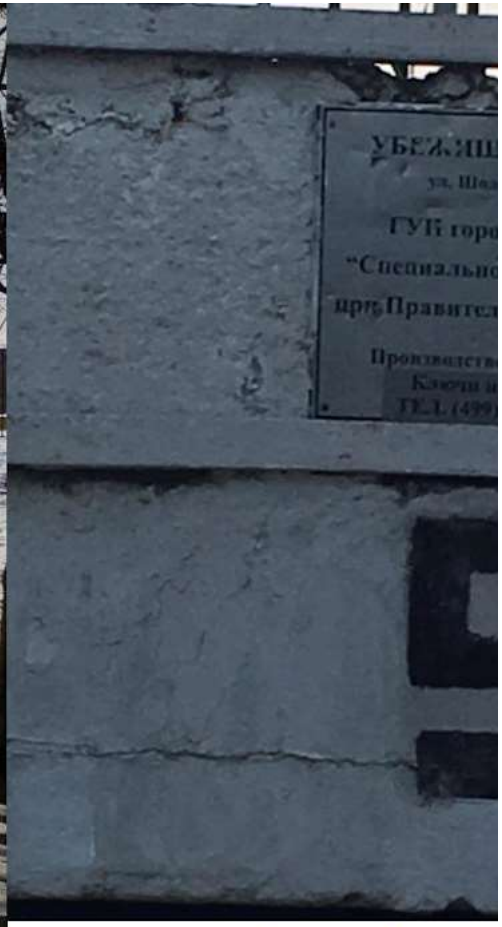


http://wikimapia.org/12296661/Bomb-Shelter
Bomb Shelter (Moscow) RUSSIA

Nearby cities:

Coordinates: 55°38'9"N 37°21'49"E


9А






11
Школа № 1



Nearby cities:

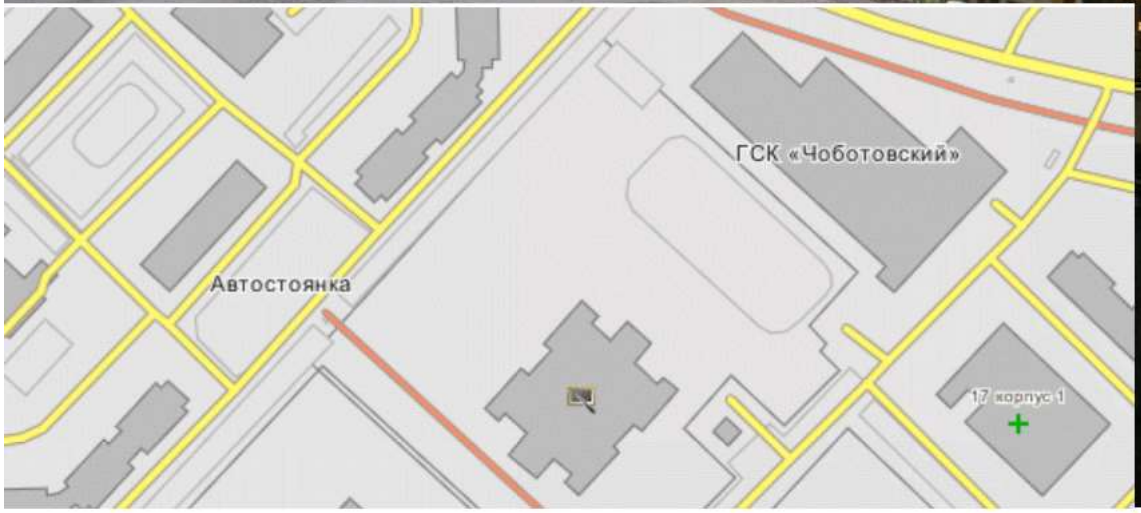
Coordinates: 55°38'23"N 37°20'54"

Moscow nuclear shel







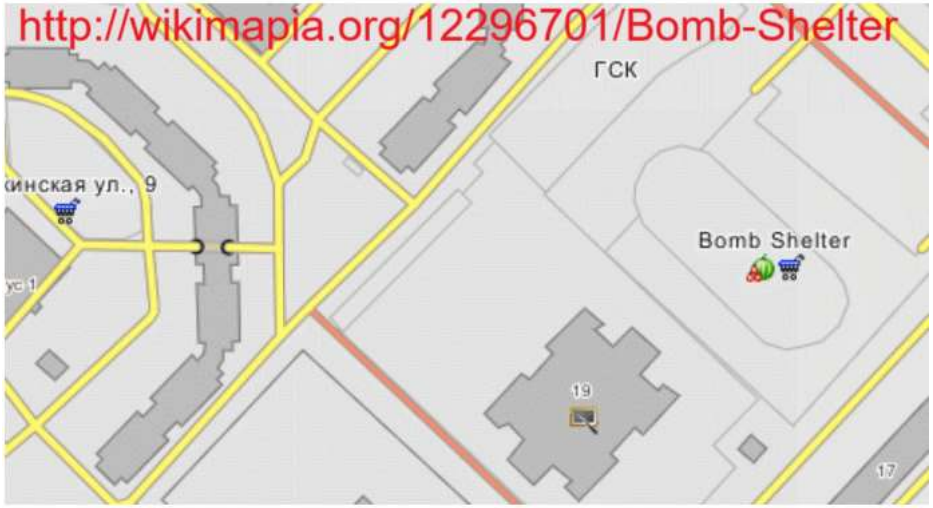


Nearby cities:

Coordinates: 55°38'44"N 37°20'46"E

Moscow nuclear shelter http://wikimapia.org/21940941





Nearby cities: Moscow nuclear shelter
Coordinates: 55°38'35"N 37°20'32"E







Moscow nuclear shelter



Bombshelter (Moscow)

Russia / Moscow / Moscow

Secret Moscow shelters (no photos available) indicated on leaked plans

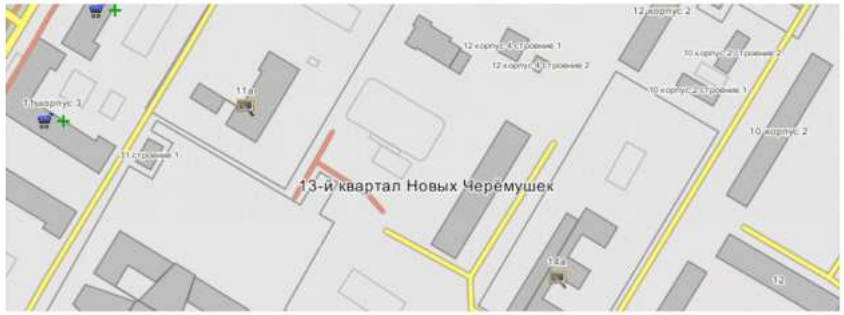


Nearby cities:
http://wikimapia.org/22060790/Bombshelter
Coordinates: 55°43'29"N 37°31'49"E

http://wikimapia.org/22060873/Bombshelter



Nearby cities:
Coordinates: 55°43'32"N 37°31'57"E



Nearby cities:
http://wikimapia.org/4960864/School-bombproof-shelter
Coordinates: 55°41'8"N 37°35'14"E

http://wikimapia.org/21882728/underground-facility

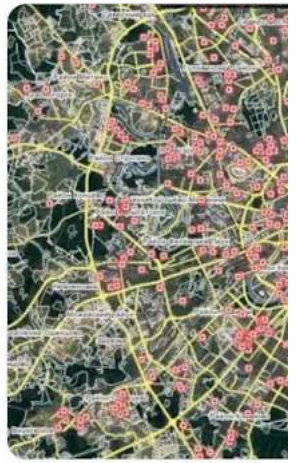


Nearby cities:
Coordinates: 55°46'30"N 37°35'35"E



Niels Groeneveld
@nigroeneveld

A map of bomb shelters in Mc
channels #mobilization #osir



https://twitter.com/nigro
464

Bomb Shelters Moscow – St. Petersburg
Published

https://cybers
shelters-mos

https://novayagazeta.eu/articles/2022/12/15/shelters-to
apartment-blocks-malls-en-news

NEWS
SOCIETY
Shelters to be set up in Moscow region's apartment blo

02:42 PM, 15 December 2022

Moscow region authorities will organise shelters in apa
region, regional official Sergey Poletykin said at a Mosc
meeting



According to him, shelters in shopping centres and high
safety for up to 15 million people. He also said that the
street signs with shelter addresses and directions “to av

In November, signs pointing to the nearest shelters wer
buildings in Novokuznetsk. The shelters are mainly plac
blocks.Moreover, Deputy Mayor of Belgorod Valentin D
interactive shelter map and hang signs around the city,

4 *The Daily Telegraph, Tuesday, August 11, 1981*

AMERICA DEFENDS SECRECY OVER BOMB DECISION

By FRANK TAYLOR in Washington

THE Reagan Administration yesterday brushed aside suggestions that there should have been full consultations with Nato before the decision was taken to provide the neutron bomb.

Mr Caspar Weinberger, Defence Secretary, said in a television interview that there was "no particular reason" why the Allies should have been consulted first.

As there was no intention of deploying the weapon in Europe "to to do anything with it but stockpile it" in the United States, the question of consultation did not arise.

Mr Weinberger's seemingly peremptory reaction followed some confusion among official spokesmen over fhether or not the European Allies had been told about the neutron decision.

At first, Mr Larry Speakes, the Deputy White House Press Secretary, said that they had been consulted. Less than 24 hours later, he reversed himself and said that the news had leaked out before the allies could be notified.

Yesterday, officials were placing heavy emphasis on the initial reaction from European Governments that, as the neutron bombs would be stockpiled in the United States, their manufacture was "an internal American affair."

But critics of the decision pointed out that the weapon is meant almost exclusively for use in the European theatre and that it would sooner or later have to be deployed on European soil.

These critics see the Weinberger argument as part of a larger "smokescreen" thrown up by the Reagan Administration in an attempt to soften anti-neutron sentiment abroad.

They look with a exceedingly

sceptical eye on "leaks" from the State Department that the neutron decision was strongly opposed by Mr Haig, Secretary of State, who, according to some recorts, "Went head to head" with Mr Weinberger over the issue.

Mr
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Kent and Sussex Courier

HOW WE WOULD FARE IF WAR BR(

INCREASED WORLD tension has raised the haunting question of Britain's feeble civil defence anew. Even before Russia invaded Afghanistan, a new attitude to public survival in nuclear war had started in local and national government.

The old "don't worry about it" approach is on the way out. Early this summer the Government will announce its new, more open Home Defence Policy and a revised version of Protect and Survive — the Government booklet that tells how to survive a nuclear holocaust — will be put on sale.

What exactly would happen in a nuclear war? The Courier has spoken to the people who will be given executive power to completely control Kent and East Sussex in such an event — the emergency planning staff at Kent and East Sussex County Councils.

But first it is important to remove two widely held fallacies about nuclear war. If it happens, martial law will not be declared and there will not be a military dictatorship. Everything is geared for a civil administration.

Nuclear attack will not mean complete destruction. Nobody knows how many bombs would fall on Britain or how destructive they might be. But the best educated estimates conclude that 77 per cent of the population would survive — if they take proper basic precautions.

And in an area like West Kent and East Sussex, where there are no likely targets, the survival rate is

SHADOW OVER THE NATION



BRITAIN'S second nuclear test explosion which took place on May 31, 1957 in the Central Pacific. The picture was taken from a Royal Navy ship

Scenario for nuclear

HOME TOWN DEFENCE WILL BE UP TO YOU

A WORLD LEADER dies and Russia begins overtly aggressive moves in central Europe. There now follows a period of international tension lasting three to four weeks with the nations trying to avert war.

Home Defence planners are now not so sure about this time span — it could be shorter or it could lead first to a conventional war in Europe. Even more frightening, there could be an instantaneous nuclear attack without any real warning.

By IAN TODD

If the position deteriorates a "war crisis situation" is entered lasting two to three days with open measures taken to prepare for war. If no detailed plans have been made and no information already given to the public about how to survive, it will come now.

The public will be told that there are no shelters. A version of Protect and Survive will be delivered to each house, it is hoped, but there will be Government broadcasts on television and radio and articles in newspapers telling people what to do.

They will be told to select a fall-out room in their house and build within this an inner refuge for protection from radiation. They will need at least 14 days supply of food and water.

If negotiations to avert nuclear war fail, or if the conventional war escalates, Russian rockets will be fired at Britain.

Three minutes before the bombs fall a wailing siren will give warning to take shelter. The bombs are likely to be one or two megatons — a megaton being equivalent to one million tons of high explosive.

Targets

Although it is unlikely that they will be fired directly at West Kent or East Sussex, the area is surrounded by potential targets — Gatwick Airport, Dungeness Power Station, Portsmouth, Chatham and, of course, London.

Most people in this area will hear one or more bombs exploding followed by a series of bangs and vibrations as the pressure waves pass over. people caught in the open could be temporarily blinded by the flash and knocked over by the shock waves.

This area should escape the devastation caused by blast, intense heat and hurricane force winds generated by a nuclear explosion. But, depending on the size of the bombs, their location, and the

executives will be supported by the police and military.

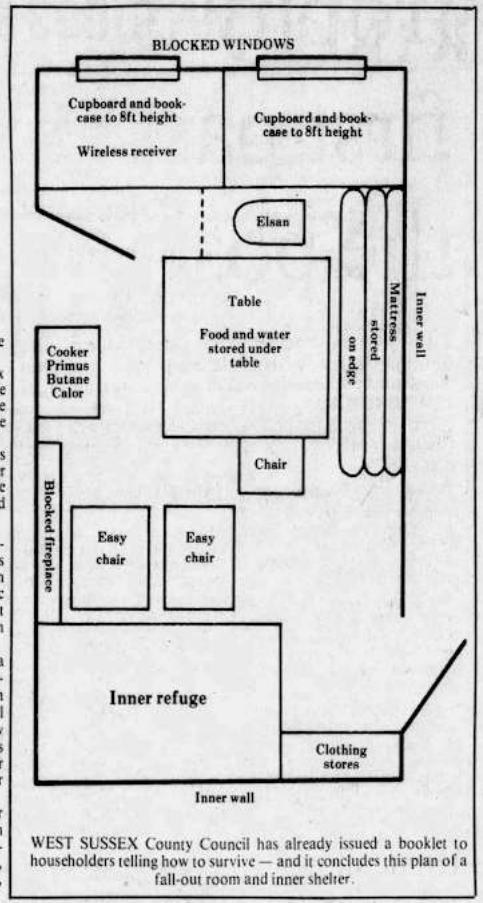
Both the Kent and East Sussex emergency planning staff are prepared for an exodus of people from London immediately before a nuclear attack.

The staff from both councils agree that there will be a civil order problem, with "inevitable elements of food rioting and looting".

East Sussex expects its population to double and both counties expect to provide accommodation for these extra people in public buildings. It is also possible that some will be billeted with residents.

East Sussex has prepared a model community warplan in conjunction with Newick Parish Council but it remains a political decision whether this plan will now be issued to all the county's wards and parishes — or whether distribution should wait until war looks imminent.

The plan covers all aspects for the community to get through those first two years — conservation and distribution of food, water, fuels, clothing, shelter, medicine.



WEST SUSSEX County Council has already issued a booklet to householders telling how to survive — and it concludes this plan of a fall-out room and inner shelter.

Now the Inner Refuge

Still greater protection is necessary in the fall-out room, particularly for the first two days and nights after an attack, when the radiation dangers could be critical. To provide this you should build an inner refuge. This too should be thick-lined with dense materials to resist the radiation, and should be built away from the outside walls.

Here are some ideas:

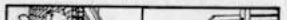
1. Make a 'lean-to' with sloping doors taken from rooms above or strong boards rested against an inner wall. Prevent them from slipping by fixing a length of wood along the floor. Build further protection of bags or boxes of earth or sand – or books, or even clothing – on the slope of your refuge, and anchor these also against slipping. Partly close the two open ends with boxes of earth or sand, or heavy furniture.



2. Use tables if they are large enough to provide you all with shelter. Surround them and cover them with heavy furniture filled with sand, earth, books or clothing.



3. Use the cupboard under the stairs if it is in your fall-out room. Put bags of earth or sand on the stairs and along the wall of the cupboard. If the stairs are on an outside wall, strengthen the wall outside in the same way to a height of six feet.



On today's Beta Coupé v





THESE TWO pages from Protect and Survive — the official Government booklet telling civilians how to survive a nuclear attack — give instructions about building the inner refuge. The booklet will not be issued until war seems imminent.



bombs, their location and the weather, the area will be hit by radioactive fall-out about ten minutes after the attack.

The warning sign for fall-out is three loud bangs or three whistle blasts. In the intervening ten minutes, householders are advised to put out any small fires caused by the explosion, gather any extra supplies and then get into their inner refuge.

People caught in the open during the actual attack should lie flat, cover all exposed skin and put their hands over their eyes. If they can get home in the next ten minutes they should do so, if not take cover in the nearest building.

The radioactive fall-out contains 15 per cent of the energy from the nuclear explosion. The rest quickly goes in the blast (45 per cent), heat flash (35 per cent) and initial radiation (5 per cent).

your own personal touc

No two Lancia drivers are ever the same. You all have your own impeccable, but quite different tastes and preferences. That's why, with every Beta Coupé that's registered and delivered on or by May 3rd, we give you a budget of £200 to spend on your new car. You can choose from absolutely any of today's vast range of car accessories to make your Lancia Beta completely your own. Sun roof, stereo radio/cassette, black vinyl roof; whatever you choose, you'll know that your Beta Coupé will be unlike any other on the road

All Lancias are now protected our new 6 year Corrosion Prevent Warranty.

And when you take delivery of yo new Lancia Beta Coupé before May 3 the routine retreatment checks after 23 and 42 months come completely fr of charge. Because naturally we'd like

...and w

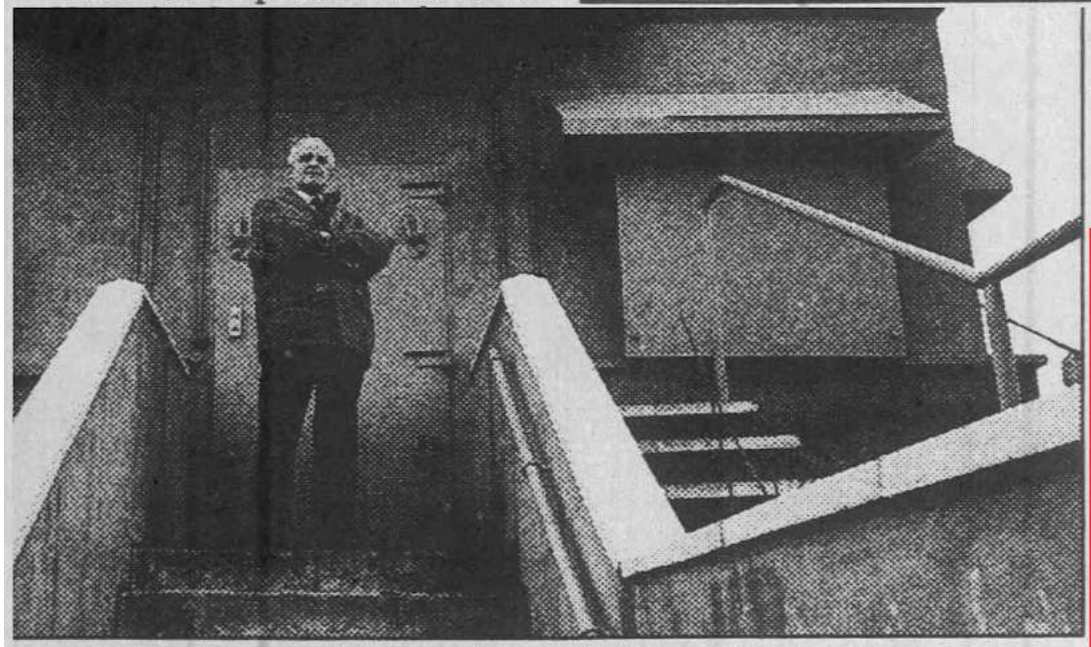
to feel you're still driving the smartes on the road. Of course this warranty is

THE SUNDAY TELEGRAPH JANUARY 5 1992 7

For sale: nuclear-proo res. deep in the cour

ONCE they were among the most secret places in Britain.

by Christy Campbell Defence Correspondent



Don Warden selling bunkers*Photograph: Nick Rogers*

Definitely not for sale is the Home Office's own parallel network of 22 super-bunkers.

Nor is Whitehall yet soliciting bids for the network of bomb-proof tunnels that riddle central London.

But London's underground citadels are small compared with those under Moscow.

A KGB officer revealed last week that the Kremlin is linked by an underground railway to a vast nuclear shelter in the suburbs, with cinemas, theatres and luxury apartments — said to be stuffed with enough food to keep 120,000 people alive for 25 years. No doubt that, too, will soon be for sale.

year begi Bu itori of a r Mr sum revie oblig emer and a tres, plus just Th lish a as p swit ning ters. said their defe emer

The Daily Telegraph, Monday, May 18, 1981 15

BOOKS FOR BRITISH CLASSROOMS FROM RUSSIA WITH LOVE

By JOHN IZBICKI Education Correspondent

A MAJOR Russian propaganda campaign has been launched in schools throughout the country. Evidence disclosed to me yesterday suggests that teachers are being bombarded with books, pamphlets and leaflets, all free.

Parcels postmarked Watford, Herts, contain books written by the chief of the influential international department of the Russian Communist party and a 202-page volume called "Disarmament: Soviet Initiatives," by President Brezhnev.

Earlier this year, teachers received a letter signed by Mrs Victoria Cherneyeni

CAMBRIDGE EX COLLEGE

Titles available

Among the titles a are: "Privileged Cla Children): Soviet Demo Work" by Irene Ouchir "Young People in the "Invincibility, the Li Movement" and "The Vital Force of Leninism by Boris Ponomarev, the central committee leader sible for relations with Communist parties, and a hard-line Stalinist.

Sports teachers mi interested in a book "1980 Olympics" whic the journalistic su "What? Why? When? How?"

There is a series of ge books on the various of Russian as well as a s science. There is even Chinese work—"Injusti hind the Wall."

Novosti has doubtless on its list of "subscrib Czechoslovakia, for have been receiving separate cover — prop material from Orbis, a based news agency. range from "U S A and Rights" to "Chile: an tion and a Warning."

Protest to Boysc

Mr Michael Ivens, of Aims of Industry, the sation campaigning fo

EX-COLLEGE MASTER DIES

THE former master of Downing College, Cambridge and a distinguished classical scholar, Prof. William Keith Chambers Guthrie, has died, aged 74.

Educated at Dulwich College, he went up to Trinity College, Cambridge, as a Scholar in 1927, became a Bye-Fellow of Peterhouse in 1930 and remained at the college until 1957.

Archaeological search

with an address in south-west London, announcing the new "free service."

It stated: "We are introducing a new service for schools and organisations providing them with a free subscription to Novosti Booklets which provide information about Russia. We intend to send approximately 40 booklets per year.

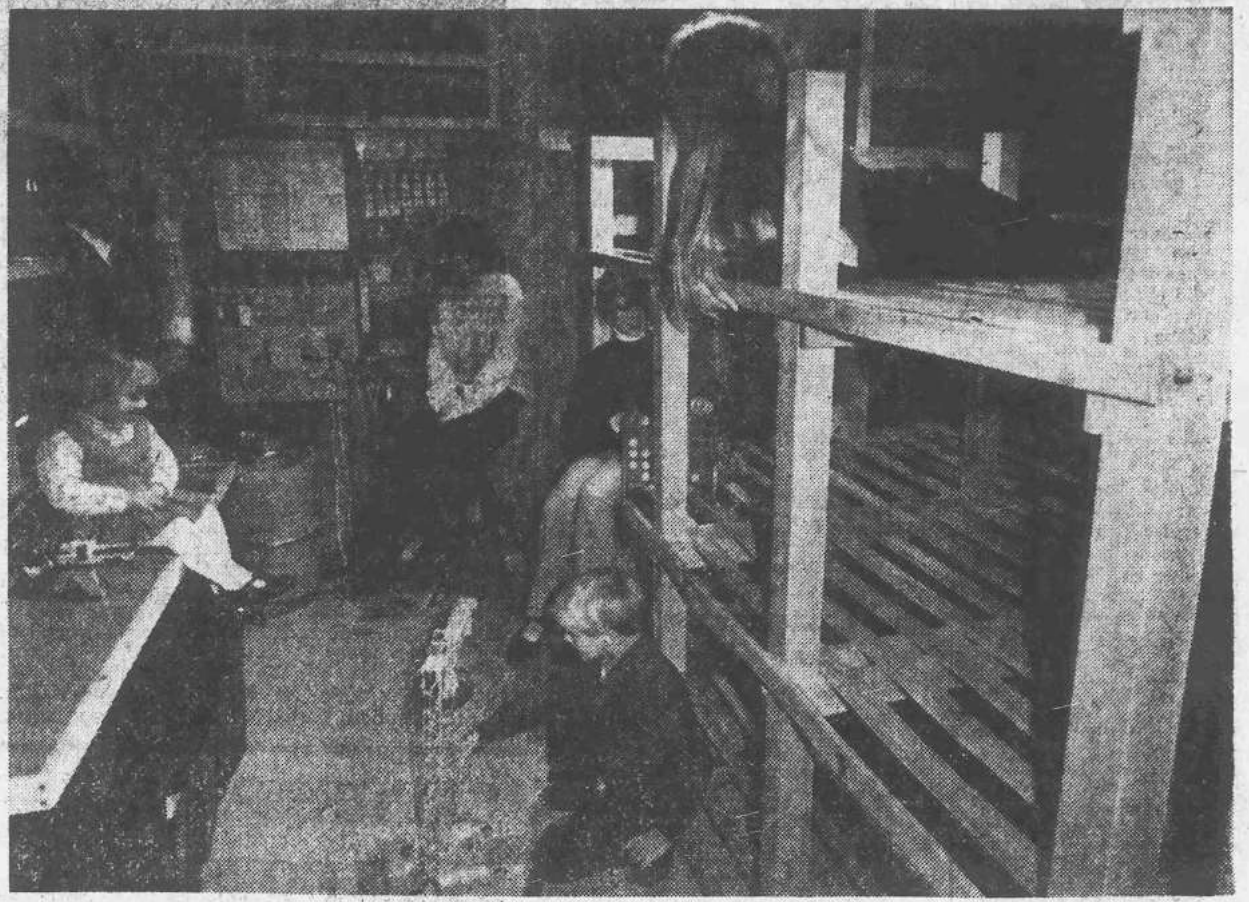
Although Russian propaganda has found its way into British schools before, the present campaign outreaches any of the previous infiltrations. With text books at a premium and many schools unable to afford them, a free service of this kind finds an easier entry.

sation campaigning to
enterprise in industry
written to Dr Rhodes
Under Secretary for Edu
to protest at the Russian
ganda action and aski
Department to intervene

He also wrote to Mr
neyeni to ask for a
Russian schools "to wh
could send material abo
enterprise and so on,"
he had expected, the res
"a resounding silence."

Yesterday, Mr Iven
me: "It is not merely
for British schools to ta
kind of material; it rai
whole question of reci
of information and propa

Refuge from the nuclear storm



William and Sandra Donson and family in the nuclear shelter beneath their house at Coleford, near Bath.

AT THE foot of 13 concrete steps in a garden near Tunbridge Wells in Kent there is a nine-inch thick steel and concrete door, and beyond that another equally massive portal. Behind the doors is one of the most depressing rooms in Britain — a room that the owners hope they will never have to use. This is the ultimate nuclear shelter.

Two years ago I wrote of the Government's strategy for civil defence in the event of World War III. The preparations then, as now, were largely based upon an assumption that there would be a two- to three-week build-up of international tension during which time a booklet called "Protect and survive" would be printed and distributed.

Little has changed, and the entire Civil Defence budget (below 50 pence a head) is channelled towards local authorities who can claim 75 per cent. of the cost of setting up their wartime command control centres.

Mr Alistair Watts, publisher of the monthly magazine PROTECT AND SURVIVE, complains: "They are allocating a little money to aid survivors of nuclear war, but none for aiding people to survive it."

About 500 families in Britain have so far decided to install a shelter.

"When I started to look at what other countries were doing in the way of protecting their citizens from the effects of nuclear war I was horrified. In Switzerland, for instance, every house, school, factory and cafe must have adequate shelter space to protect people if a bomb goes off."

The people of Moscow would take refuge in the deep and well-equipped underground stations which can be immediately isolated from the outside world when massive steel doors are closed. In Peking it would take only a matter of minutes for every citizen to reach the elaborate

willing to consider a mortgage extension to cover costs.

The trouble is that few people, even surveyors, are fully aware of the needs of a fallout shelter. The Federation of Master Builders has just published a booklet (price £1) which sets out to guide the uninitiated towards the right shelter.

The guide helps decide which types of prefabricated shelters are likely to last for 30 years or more, some materials being particularly susceptible to water.

The guide recommends that the shelter should have a decontamina-

One of the finest shelters I have seen was built near Tunbridge Wells at Langton Green. The Institute of Cultural Research teamed up with its neighbour, Mr Richard Rieu, county court registrar for Tonbridge, to create the ultimate protection, with even a degree of comfort.

The shelter, constructed from a dozen massive steel and concrete sewage pipes, nine feet in diameter, cost £20,000 to install but it could accommodate about 20 people.

Thirteen steps lead down to the first nine-inch thick steel-and-concrete

Mr Watts believes that figure will double during the next 12 months, and already at least 25 British firms are marketing shelters.

The first thing to understand is that there will be life after a nuclear war, whatever preparations we make. In his book,* published last month, Magnus Clarke estimates that 33 million British people would survive a nuclear war, but only 10 million would remain alive for more than a year.

People considering a shelter must decide whether they want one that will withstand both blast and fall-out. Someone living on the Scilly Isles or the side of a Welsh mountain would be most unlikely to suffer the effects of blast and so a comparatively simple shelter to protect against fall-out would suffice.

One man who takes the threat of nuclear war very seriously indeed is Mr William Donson, a builder, who has created a prototype of his new shelter at his own home at Coleford, near Bath, Avon, which Pearsons are now offering for sale at £79,500. The house has six bedrooms and grounds of about one acre.

shelters which are themselves connected to a network of escape tunnels.

The shelter, which costs about £13,000 to build, has room for nine people with comfort. Mr Donson has now launched a new company, San-Don Nuclear Fallout Shelters.

"The cost works out at around £1,500 per person, but a much larger shelter is proportionately less expensive," said Mr Donson.

The shelter, 14 feet below the ground, is approached by steps from the children's playroom. It measures 11ft x 11ft, and is 9ft high. A massive two-ton door seals the entrance. Inside the family is already stocked with bottled water, canned food, medical equipment, radio and radiation detection equipment, and dry toilet facilities. There is an emergency exit, and more than one air filtration supply. Pick and shovel are provided in case both exits are blocked by rubble after the crisis.

Unless you are planning to build your shelter within 6 ft of your house or close to public services there are no planning restrictions, and most building societies have been

shelter should have a decontamination area totally separate from the main living area, where shoes and clothes can be removed. There should also be more than one exit, and a mechanical means of opening the door (i.e., by sliding) in case the debris outside prevents escape.

The size of the shelter should be sufficient, says the federation, to allow five hours worth of free air without using the air circulatory system. In that way the inhabitants can survive even if a fierce fire is raging above.

The Home Office itself has also just issued an official guide for do-it-yourself nuclear shelters. The large technical book costs £5·50 from HMSO bookshops and there is also a 50p booklet giving basic advice.

Four types of shelter are described, ranging from rather flimsy erections made of household materials to more substantial purpose-built protection.

Shelters have few uses other than as protection from war. One that has evolved in recent months however is that of wine cellar, the temperature being perfect.

door which opens on to the decontamination area. Then another equally huge door opens into the main body of the shelter. The stairs down to the entrance are deliberately not built in a straight line so that the effect of blast is lessened.

The interior of the shelter has bunk beds, hand-cranked air and generator machinery, dry toilets, food storage areas under the floor, and radio equipment with a plentiful supply of batteries. There are also emergency air supplies.

It has been calculated that people taking refuge within would be unharmed if a one-megaton bomb fell only one mile away.

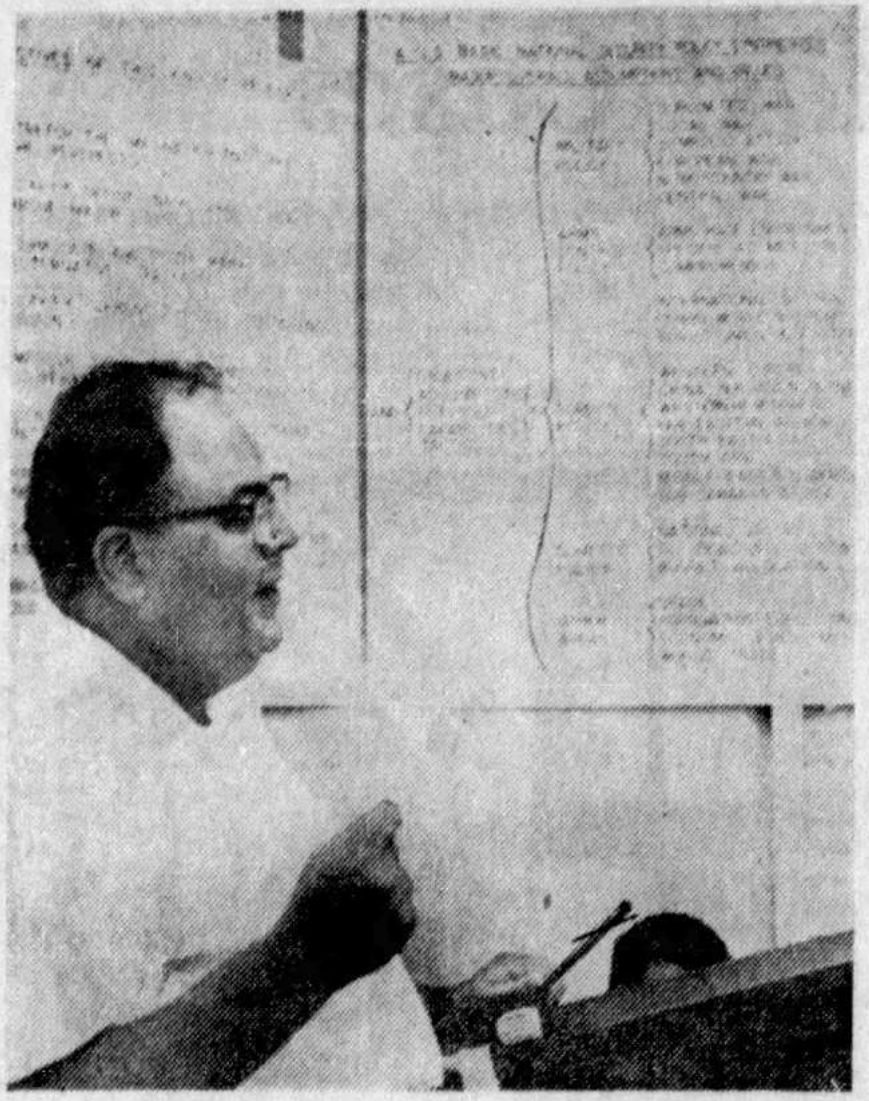
Mr Ivan Tyrrell, an officer with the Nuclear Protection Advisory Group, said: "For an outlay of £10,000 million the Government could provide shelters for everyone —vastly less than is being spent on some weapon developments."

It is all a gloomy topic for consideration during a Christian festival.

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* *"The Nuclear Destruction of Britain" by Magnus Clark, Croom Helm* (£11·95).

30-E THE MIAMI HERALD Thursday, May 14, 1964



—Associated Press Wirephoto

Dr. Strangelove's Mentor

. . . Dr. Kahn thinks the 'unthinkable'

By RICHARD WHALEN

HARMON - ON - HUDSON, N.Y. — (AP) — Herman Kahn, who contends a doomsday machine could be built, now runs a "think factory" where scholars ponder and debate nuclear war.

"We think about the unthinkable," Kahn likes to say.

His staff of 25 do their thinking in sylvan seclusion high above the Hudson River at the Hudson Institute. This year it has nearly one million dollars in federal contracts, mostly for advice on nuclear strategy.

Kahn, a rotund, bespectacled dynamo who speaks at breakneck speed to keep up with his thoughts, is a physicist-mathematician turned philosopher.

A doomsday machine, if you didn't know, is a super-nuclear bomb buried deep in the ground and powerful enough to blow up the whole world. It would be set to go off by computer under a given set of circumstances — for example, if another country destroyed the United States by atom bombing.

'Think Factory' Gets $1 Million From the U.S.

The man who postulated the doomsday machine and inspired "Dr. Strangelove" now runs a "think factory" for the government, thinking about the unthinkable. A look at Herman Kahn and his group of thinkers.

★ ★ ★

KAHN is opposed to doomsday machines. But seven years ago he declared it's theoretically possible to build one. His purpose: to provide a ridiculous extreme as an antidote to overly eager militarism.

"It's the best deterrent you can think of," he says, "but nobody wants one . . . the goal is controlled deterrence."

Comfort for Optimists: Nuclear War Wouldn't Be an 'A

HERMAN KAHN

Last Friday, The Sun devoted all of Page Five to excerpts from Herman Kahn's provocative book about nuclear war, Thinking About the Unthinkable. In response to requests from readers, further extracts appear today and tomorrow.

Mr. Kahn is director of New York's Hudson Institute, a private corporation which specializes in theoretical studies of thermonuclear war for the U.S. Defence Department. His book is published by Horizon Press, New York, and is copyright, 1962, by Herman Kahn.

By and large, most Americans and perhaps most other people find it hard to believe in the possibility of a controlled war.

It is difficult for many to believe that once a war starts either they or the enemy might be deterred from any action against each other by fear of reprisals.

Many have a feeling that thermonuclear war must be all-out and uncontrolled.

This is a naive point of view for two distinct reasons: first, it is not sensible, and second, it may not be true.

Even if one tries to be uncontrolled, he may find himself being threatened so persuasively by an enemy that he will control himself at the last moment.

One reason why we Americans and others of the West do not fully understand these possibilities is that we have been bemused by the examples of World War I and World War II — two of the most unlimited wars in history.

There was little attempt to negotiate during them. There was a widespread feeling that one did not negotiate during the course of a war unless one was either clearly victorious or clearly defeated.

The only moral or practical objective was to destroy the enemy's military power and then to dictate a peace.

Yet even in World War II it should be noted there were elements of control.

★ ★ ★

IF A MILITARY PLANNER JUST BEfore World War II had been asked to list the three most terrifying weapons of the coming war he would probably not have failed to include poison gas.

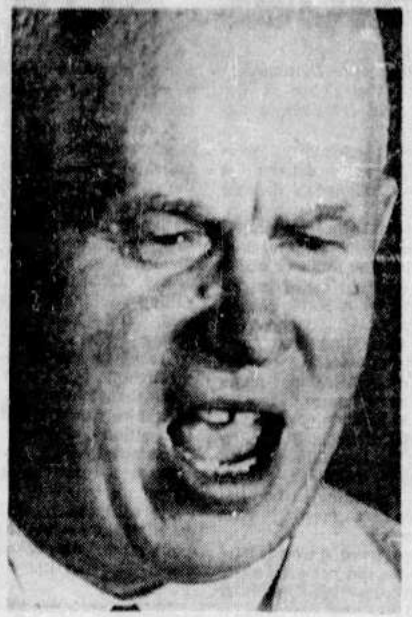
Indeed, by 1939 gasses had been made vastly more deadly than any used in World War I. In the all-out World War II, however, no gas was used by either side.

While to most people World War I and World War II are prototypes, actually they were most extraordinary wars. A study of the history of warfare between civilized nations reveals few periods in which the strategic doctrines of these wars held sway.

The more classical way has almost always been to fight for some definite, generally limited objective, or to prevent the enemy from attaining some such objective.

Accepting this view, countries have tended to make their actions, fighting, pressures, and reprisals consistent with their limited objective, in some sense.

Although modern technology has given nations the ability to fight uncontrolled wars greater than any in history, it has also made the sanctions against fighting such wars larger than ever before.



KHRUSHCHEV
. . . can war be limited?

We found this out in Korea. Before Korea, few Americans would believe we could limit ourselves as we did there. In Korea we learned that just like anybody else we can be deterred, we can be cautious, we can be responsible.

Moreover, what is equally interesting and unknown to most Americans is that the Communists in the Korean conflict also behaved with caution.

While we did not attack supply bases and airfields in China, neither did the Communists interfere with our long, vulnerable supply lines by using submarines or mining. Had purely military considerations prevailed it is clear that "Chinese" and "North Korean" submarines might have had a field day in the seas surrounding Korea.

★ ★ ★

AMERICANS ARE NO TOUGHER THAN, say, the Japanese or the Germans, and these people surrended rather than fight to the last man. Similarly, we may be restrained by sufficiently large threats—after an attack as well as before.

I suspect that the main reason why Americans find it difficult to believe a war can be fought rationally or reasonably is that in our country, for the most part, we do not give force any rational or reasonable role.

We feel that only a law violator, a criminal, a desperado, or a sick or insane person uses force.

B-4 The Virginian-Pilot and The Portsmouth Star, Norfolk-Portsmouth, Va., Sunday, Dec. 24, 1961

Herman Kahn: 'Monster' in Pers

By Laurence Barrett

Herald Tribune News Service

Herman Kahn, the man who insists we can survive a nuclear war, comes across better in person than in print. He is a round, jovial scientist who could pass for the owner of a kosher delicatessen in his native land, the Bronx.

In his book, "On Thermonuclear War," and in other writings, Kahn discusses his subject with chilling empiricism.

"Despite a widespread belief to the contrary, objective studies indicate that even through the amount of human tragedy would be greatly increased in the postwar world, the increase would not preclude normal and happy lives for the majority of the survivors and their descendants," he wrote in the book.

He went on to estimate how many millions might die. Apparently he believes the number is smaller than most of us think, or at least that the toll can be reduced to manageable proportions if we are wise. Of one thing he is convinced: our civilization can survive a third world war.

The Kahn thesis has met

war and peace objectively. Let us equip ourselves to meet any circumstance. Let us come through alive if the worst occurs.

His business is inquiry. Last summer Kahn and a few associates created a new instrument for exploration, a nonprofit research organization in White Plains, N.Y., called the Hudson Institute.

The other members of the Hudson think factory's executive committee are David Truman, chairman of the public law and government department at Columbia University; Harvey Picker, president of Picker X-ray, and two lawyers, Oscar Ruebhausen and Max Singer.

Since 1947 Kahn had practiced physics and mathematics at the Rand Corporation of California, a research outfit that is largely dependent on Air Force contracts.

"Hudson will be a high-class Rand," Kahn said. "I left Rand because it was bound too closely by government work. It was difficult to do really broad work there. We will not depend on a single patron and much of our work will be made public. Our sphere will be national security and international order."

Hudson got its first four commissions from IBM's Federal

federal government—now negotiating with Hudson—need the circle of think organizations that have come into being since World War II?

"If the president of IBM needs a brain operation," explained Kahn, "he does not call in the plant doctor. He gets the best brain surgeon he can find.

"Experts in our field are as rare as good brain surgeons, and they don't work for IBM." As for Washington, "It simply hasn't the capacity to carry on sustained studies that may take three years. So they come to us."

In the midst of an interview in his rented house in Chappaqua (the Kahns are having a new house built nearby with its own combination blast and fallout shelter), Kahn's petite wife is apt to bring out coffee and cake, while the two young children play in the next room.

But a conversation between Kahn and a visitor inevitably turns to war and peace.

Kahn insisted that he is not a ghoul. "If I say, for instance, that 10 million people will die under certain circumstances, rather than 20 million, some one always thinks I am saying 'ONLY 10 million.' It's like having a rich uncle and saying to

oretical wherewithal to bring about disarmament.

He likened the arms race to a game of chicken, the occasionally suicidal gamble indulged in by hot rodders. Two cars come at each other. The first driver to swerve aside is "chicken." "We have thrown away the steering wheel," Kahn believes. "We've erased the white line. We're not even sure what road we're on."

To hope for disarmament is one thing; to bank on it is another. He is inclined to think disarmament will come only after a very serious crisis—a state of affairs far more tense than today's—or an actual war.

There is always the chance of nuclear accident that sets off a duel of missiles or bombers or both.

This possibility, feared by most experts, might turn out to be a blessing, Kahn said. In a few sentences he set an imaginary situation in which the United States and the Soviet Union unwillingly begin tossing warheads at each other. Somehow both sides realize it is a mistake. They arrange a truce. The world wakes up the next morning, having lost a few cities, perhaps, and still teetering on the edge of total war.

"Do you think," Kahn asks,

government now
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Kahn said.

Again, his ma
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with severe criticism — a moral tract on mass murder," one critic calls it.

It is charged that his work tends to discourage disarmament and to make the prospect of nuclear war seem less dreadful than it is. Kahn is unhappy about this opposition, not because of the personal accusation that his is an outsized blood lust, but because some of his opponents would stifle his line of inquiry.

Face to face, it is hard to quarrel with this man. A lively sort with a Kris Kringle shape, he peers calmly from behind thick glasses, and speaking rapidly, makes a case that can best be summarized: Let us explore all facets of our problems of

Systems Division, the Mitre Corporation, the Martin Company and Stanford Research Institute.

The subjects include "command control systems," "national interest in international order" and "civil defense as related to overall strategy." Initial financing for Hudson came from advance payments on these contracts and a donation from a benefactor who prefers anonymity. As Hudson's operating head, Kahn received $26,000 a year, about the same salary he got from Rand.

What can a research group that now has just 15 staff members do for a giant like IBM that IBM cannot do for itself? For that matter, why does the

him, 'Uncle, when you die. . .' Of course, he cuts you out of his will right away. You've got to say, 'Uncle, God forbid, if you die. . .' I keep saying the equivalent of 'God forbid' and 'if' but some people ignore this."

He is frankly pessimistic about the prospect of negotiated disarmament because "there isn't enough good will around the conference table. Things aren't that simple."

Nevertheless, he thinks Washington must continue to seek an understanding with Moscow, and that organizations like Hudson should do what they can to provide the technological and the-

"that Kennedy and Khrushchev could go to their peoples the morning after and say, 'it was all a mistake. We'll go back to the way things were the day before yesterday?' Of course not. There would have to be a settlement. On that morning you could probably get signed any draft treaty that was ready."

Ugly as it is to contemplate, this sort of contingency thinking is being scouted and impressed on the White House and top American defense planners in Kahn's latest policy work for the government, the "diplomacy of the last stages of crisis."

One of our problems is that the

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BUFFALO EVENING NEWS Saturday, June 27, 1959 page A-2

Nuclear War Hearings Show Public Needs to Face Facts

Survival Is Granted, but Rate of Recovery Hinges on Readiness to Learn Basic Rules

By NAT S. FINNEY

Buffalo Evening News Bureau

WASHINGTON, June 27—The United States could survive the kind of nuclear attack Russia is now capable of making, but it could survive in better shape for quicker recovery if it psychologically acknowledged the danger and learned simple, grass roots things about survival.

This conclusion sums up results of the first unblinking public look the Federal Government has ever taken at nuclear war. A subcommittee of the Joint Congressional Committee on Atomic Energy headed by Rep. Holifield (D., Calif.) took this look in a week of public hearings.

Rep. Holifield closed the hearings Friday with a declaration that "the facts of nuclear war won't fade away because they are unpleasant," and that "each of us must accept a personal responsibility because nuclar war is a personal threat to our survival."

Libby's "Swan Song"

Dr. Kahn held that, despite such a blow, the nation could recuperate, although readjustments would take a long time and the country would have to operate on standards it would consider "impermissible" before the attack occurred.

The Rand Corp. analyst held that estimates of the amount of land that would be unusable were far too high because the country would put up with degrees of fallout contamination it might consider unthinkable before an attack.

Urges Wide Discussion

But Dr. Kahn warned that the country is psychologically unprepared to face a Russian threat of nuclear war. He praised the committee for its efforts to get the country to face up to the possibility it might have to take an enormous blow to preserve its independence.

"If you won't discuss it, you won't do it," is a safe rule of public psychology, Dr. Kahn maintained. He held that the possibility of nuclear war not

Compromise Bill Defers Tax Cuts Until Next Year

By the Associated Press

WASHINGTON, June 27 compromise tax bill holds pects of a cut next year i federal 10% tax on tele charges and in rail, bus an plane ticket taxes.

Senate and House conf Friday approved the co mise bill which continues K wartime corporate income excise tax rates for an year. These taxes drop to Korean levels at midnight day unless a new law is ena

The conferees sent back Senate and House a bill would, in its immediate e simply continue taxes w change until June 30, 1960. a decision on changing tax would again come before gress.

Fare-Tax Cut Proposed

Conferees abandoned S passed proposals which have: (1) repealed the 4% dividend income credit; (pealed the entire 10% com cations and passenger tra tation taxes; and (3) incr federal welfare assistance

"It may well be that the time has come in man's history when he must choose between the arms race and the human race," he declared.

Friday's hearings were, in a special way, the swan song of a member of the Atomic Energy Commission who came to the AEC when the thermonuclear bomb was born, and leaves it as new missile systems are changing the face of nuclear combat. He is Dr. Willard F. Libby.

Dr. Libby made his final session with the Joint Subcommittee the occasion for a last official effort to get the Government to give its full backing to a device he deeply believes could save the lives of millions if they had it in their homes.

only should be widely discussed, but that standards for what should be done after a nuclear attack should be discussed and established before any such attack can occur.

Dr. Kahn maintained, presumably on the basis of Rand Corp. studies, that the country has some time for frank discussion of nuclear war before Russia will be in a position to deliver such an attack as was assumed by the committee for its hearings.

QUIET BIRTHDAY FOR MISS KELLER

EASTON, Conn., June 27 (AP) —Helen Keller, deaf and blind

to the states by $142,000,
year.

The House bill was limi
continuation of the 52% t
corporation income and p
rates on automobiles, auto
and accessories, cigarets, l
wine and beer.

The conferees proposed c
in half the passenger trans
tion tax effective June 30,
provided Congress does no
to continue the full rate
then.

No Gas Tax Boost

And they agreed to the
of the 10% communicatio
as it applies to local
charges, also effective Ju
1960. The tax on long-di
phone tolls and other com

DAILY PRESS, Newport News, Va., Sun., July 1, 1962 3D

Provocative Book About Nuclear

THINKINK ABOUT THE UNTHINKABLE, by Herman Kahn. New York: Horizon Press. 254 pages, $4.50.

Reviewed by Bill Amanna

x x x

Herman Kahn is a physicist who gained national prominence through his book "On Thermonuclear War," in which he described with dispassionate thoroughness what the U. S. could expect in the event of nuclear war. The book unleashed a heated debate over civil defense which is continued in Mr. Kahn's present volume.

The author's chief premise is that although "thermonuclear war may seem unthinkable, immoral, hideous or highly unlikely, it is not impossible. To act intelligently we must learn as much as we can about the risks."

How likely is accidental war? How can it be made less likely? What would conditions be if a nuclear attack leveled 50 American cities? How many American lives and European and Russian lives, would an American President risk by standing firm in differing types of crises? By starting a nuclear war?

Mr. Kahn doesn't stop there. He goes on to put his questions in even more concrete and hence more upsetting terms. He considers, for example, the defense of Europe. We have increased our non-nuclear forces to meet a possible Soviet conventional attack in Europe. The author notes our policy would be to initiate the use of nuclear weapons should conventional forces prove inadequate. So, whether we intend it or not, we may have obligated ourselves to

Some of Mr. K
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Mr. Kahn's c
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There are questions to be answered, Mr. Kahn insists, and he lists a few:

The Nation's Best Sellers

Best sellers of the week as compiled by Publishers' Weekly: The Book Industry Journal.

FICTION

1. SHIP OF FOOLS
   By Katherine Anne Porter

go to all-out war.

MUST MAINTAIN PRETENSE

The President, Mr. Kahn holds, may conclude that even if he is not willing to initiate a war or limited reprisal that could easily develop into war, he must maintain a pretense of being willing. Perhaps the facade will work. After all, even if he is not willing, the Soviets cannot rely on this. And, withal, we may in fact do nothing ourselves; it may be forced on us or occur inadvertently.

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an important serv
vacative book.

THE SUNDAY STAR
Washington, D. C.
June 24, 1962

Prophet of Changing Nuclear-War Policies

THINKING ABOUT THE UNTHINKABLE. By Herman Kahn. (Horizon Press; $3.50.)

America's nuclear-war polices have changed radically during the past year, and Herman Kahn has been the prophet of that change. The bible of the new and dominant nuclear school is his book, "On Thermonuclear War," which has sold an astonishing 30,000 copies since publication in 1960. That bible was written for the priesthood, however, and its great length and difficult new language has kept the broad public from understanding just what Mr. Kahn and his fellow thinkers about war are driving at.

This new and most welcome book, "Thinking About the Unthinkable," is designed by Mr. Kahn to do three things:

- First describe his basic ideas in more simple language.
- Second, tell about the strange techniques used by professional military analysts.
- And, third, stimulate more thinking about "unthinkable" modern war.

Someone Must Do It

Mr. Kahn, director of the Hudson Institute, is a happy extrovert who likes his work. This seems to infuriate a number of persons who attacked him personally after his first book for his failure to affect the long face of an undertaker. But Mr. Kahn points out that someone has to think about nuclear war just as someone has to think about cancer and polio. No rational person can fault him on his logic, though his ideas might sell better if he started each chapter with, "Heaven forbid it should happen, Western powers make sweeping concessions there and points out, truthfully, that there is no way NATO forces can save the city without starting a nuclear war that could well ruin the United States. Mr. Kennedy replies with the threat of a doubled or quadrupled defense budget. "Such an acceleration of the arms race, dangerous as it is, could still be less dangerous (for America) than either an attack or an accommodation," the President says. Mr. Khrushchev will either have to fall behind in the race or damage his tight economy. The threat makes him back down.

In a small way this was done last year, but Mr. Kahn's scenario is, in effect, an outline of a bolder plan for handling a future life-or-death crisis without the war Mr. Kahn—and the rest of us—hopes to avoid.

This is an important book and an excellent opportunity to see one of the nuclear age's most influential minds in action.

—RICHARD FRYKLUND.

Other Books

GENERAL

A CRUISING GUIDE TO THE CHESAPEAKE. (Including the Passages from Long Island Sound along the New Jersey Coast and Inland Waterway.) By Fessenden S. Blanchard. (Dodd, Mead; $6.50.) (Revised Edition.)

THE THOMAS WOLFE READER. Selected with an introduction by C. Hugh Holman. (Scribners; $7.50.)

but. . . ."

The techniques of strategic analysis are the most fascinating part of the book. He gives many examples of mental gymnastics such as "war and peace games," "scenarios" and "abstract models" which simply serve to force analysts to think of all possible dangers and opportunities in various strategies and methods of crisis management. These "sophistications," which could be overlooked in the old days without fear of losing a civilization, are regarded by the administration as necessities in the nuclear age.

Future Ultimatum

One rather casually presented "scenario" is alone worth the price of the book. This is a brief story about one way in which some future ultimatum over Berlin might be handled. In Mr. Kahn's little drama, Chairman Khrushchev tells President Kennedy that he will seize West Berlin unless the

All four of Wolfe's novels are represented in order of publication with several fully self-contained passages from each and included also are eight short stories and in its entirety "The Story of a Novel."

DIARY OF THE CIVIL WAR, 1860-1865. By George Tem-

The Sunday Star

WEEKLY BOOK SURVEY

The Sunday Star has arranged with of the leading book sellers of Washin and suburban areas to report each the books which sell best as a guid what Washington is reading. The n bers represent the rank of each among best sellers at the store na

For Week Ending June 22

FICTION
1. "Ship of Fools," Porter
2. "Youngblood Hawke," Wouk
3. "Dearly Beloved," Lindbergh
4. "Bull From the Sea," Renault
5. "The Reivers," Faulkner
6. "Agony and Ecstasy," Stone
NONFICTION

PASSIVE CHURCH NOT FOR ME, SAYS Mgr KENT

By GUY RAIS

MONSIGNOR BRUCE KENT general secretary of the Campaign for Nuclear Disarmament, promised yesterday to strive for peace for the rest of his life.

But he side-stepped the issue of whether he would defy the Roman Catholic Church.

"I am not going to speculate on impossibilities that have not appeared," he told a radio interviewer in London.

In an interview on the London Broadcasting Company, Mgr Kent denied that the C N D movement was Communist-infiltrated.

"There are some 250,000 members of C N D and only 19,000 Communists in the country, so their numbers are insignificant. It is the policies that count," he said.

Questioned about the role of the Church and C N D, he said: "If the Church is busy sitting in its sacristies counting its rosary beads and ignoring the great problems of the world, then I don't think it is the right church for me."

Asked if there was any chance of him giving up C N D, he said: "I am very committed to peace work and I am going to stay with peace work for the rest of my life."

Pressed to explain whether this would mean he would remain with C N D if his church superiors told him to give it up, Mgr Kent said: "I did not say that.

"I said the issue of working for peace is going to be with me all my working life. The other issue has not arisen, and I don't think it will."

Too political

But Mgr George Leonard, personal assistant to Cardinal Hume, Roman Catholic Archbishop of Westminster, hinted that the cardinal might consider C N D too political for Mgr Kent to lead.

Asked during an interview on London Weekend television if the cardinal would be pre-

RUSSIANS REJECT PETITION

ORGANISERS of the Women of Families for Defence, a new group which supports a strong defence for Britain and multilateral disarmament, protested yesterday at the refusal of the Soviet Embassy in London to accept a petition signed by 13,000 supporters.

The petition urging the Russians to response to the West's proposals for "balanced and verifiable disarmament," was taken by the group's leader, Lady Olga Maitland, to the embassy before a rally in Trafalgar Square.

But she told a gathering of about 200 supporters in the rain-soaked square: "We took our petition in a box to the embassy and explained who we were and what it contained. We were told by avoice on the inter-com that the embassy did not accept petitions, but we could come back and talk to them.

"I put the box at the entrance at the gate together with symbolic red tulips in memory of those who died in the last war, and a reminder to the Soviets that we are determined to maintain freedom in a sensible and responsible manner as we have done for the past 38 years.

"When we reached the road outside, we were told by police that they had received a complaint about litter at the Embassy gate."

Lady Olga added indig-

C N D to visit Soviet-backed peace meeting

By CHARLES LAURENCE

THE Campaign for Nuclear Disarmament is to send two members to the Soviet-sponsored World Peace Council in Prague next month, it has been revealed after a week of controversy.

The pair have not yet been named and C N D spokesmen have denied that they have been duped by the Russian propaganda machine. The C N D members will be going as "observers" rather than delegates.

Two officials of the Quakers, who are closely involved with C N D, will also be attending the meeting.

The officials, from the Quaker Peace and Service department at Friends House headquarters in London, will also be travelling as observers.

A total of 61 British delegates will be going to the meeting, which the organisers are calling the Council for Peace and Life. They are being selected by the British Peace Assembly, the London arm of the World Peace Council. Mr Arthur Scargill, the miners' leader, is sponsoring the organising committee.

Front organisation

The Quakers, the Religious Society of Friends, were caught up in controversy when it was disclosed that last year they were involved with a "red carpet" trip to Moscow during which they had been impressed with the "depth and sincerity" of the Russians' desire for peace.

The World Peace Council is generally considered a front organisation, funded from Moscow, which attempts to influence Western peace movements through conferences and propaganda.

A Friends House spokesman said: "I think we would be keen to keep our distance. We would not send delegates to anything to do with the World Peace Council."

The Quakers have pursued peace policies since their foundation in 1660. Most of the 20,000 British Quakers are affiliated or individual members of C N D as well as running their own peace groups.



Yorkshire ex-Servicemen goose-stepping in theatrical Soviet uniforms outside Sheffield Town Hall yesterday as a protest against the flying of the Red Flag by the Left-wing city council to mark May Day.

May Day protest at 'looney' Left's Red flag

By JOHN WILLIAMS

TWO former naval men protested yesterday at the raising of the Red Flag to mark May Day

nantly: "They called out petition 'litter" and we were told we must remove it. I went back and collected the petition. It shows the Russian intransigence, but they won't get away with it. I promise that Andropov will receive the petition in the Kremlin by post."

MAKING THEIR PEACE

Peace campers outside the American radio relay station at Menwith Hill, near Harrogate, Yorks, at the weekend, received a surprise invitation to escape from torrential rain and be guests of the base. They spent an hour drinking coffee and talking to American staff.

pared to ask Mgr Kent to resign as general secretary if C N D became too political, Mgr Leonard said: "Of course, that's the whole point of the cardinal expressing his reservation at this point.

"I think you could take it that he would follow his conscience and not be deterred by any sort of adverse reaction."

Mgr Leonard made it clear that in the cardinal's view, C N D was very close to becoming too political for Mgr Kent to lead.

The battle over control of C N D began four days ago, when Cardinal Hume warned Mgr Kent there might be a conflict with his role as a priest if C N D became too political.

GREENHAM ROW OVER BABIES

Women peace protesters were criticised last night after they carried babies and toddlers over rolls of barbed wire into the Greenham Common base during a May Day invasion. There were angry scenes as two Ministry of Defence police struggled to stop them swarming through a tiny gap they had made in the perimeter fence.

The local M P, Mr Michael McNair-Wilson, Conservative member for Newbury, said: "How appallingly irresponsible for a mother to use her child in a protest where somebody could get hurt.

in Sheffield by goose-stepping outside the town hall wearing hired Russian uniforms.

The tradition of raising the Red Flag was begun two years ago by the ultra Left-wing council.

But last year the city's Socialists abandoned the ceremony because of the Falklands crisis.

Yesterday, the flag was unfurled in what Councillor Irvine Patnick, leader of the Conservatives on South Yorkshire's County Council, described as another "looney scheme."

The two men in uniform, who would not identify themselves, marched down the town hall steps as Mr Patnick received a mock certificate from Major John Taylor, chairman of the local Ex-Servicemen's organisations.

The certificate declared that Sheffield was accepted into the Soviet Socialist Republic "for driving business out of the city, brainwashing the young, giving Mr Arthur Scargill 'political asylum,' assisting the Marxist creed and being without defence."

Other "looney" schemes include:

Banning Kit Kat biscuits from the City hall canteen, because the makers have links with South Africa.

On-the-spot MOT testing for children's push chairs and renaming streets after Socialist leaders.

'Sick of it all'

As demonstrators unfurled the Union flag Mr Patnick said: "We do not want the Red Flag and people are pig-sick of it all and we felt some protest was necessary.

"I was asked to come here by people who organised this spontaneously. In Sheffield, we have a Communist peace officer, a treaty with Donetz, and Marxist street names."

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National Advertising Representatives: Cresmer, Woodward, O'Mara and Ormsbee, Inc.

U. S. COULD LOSE EDGE IN NUCLEAR POWER BALANCE

With the election over, the President and his defense secretary must now make some hard military research-spending decisions.

The nuclear balance of power between the United States and the Soviet Union is so unstable, some key Pentagon scientists say privately, that it could be upset quickly by three Soviet research breakthroughs:

—Development of an effective antimissile-missile network capable of handling massive attacks of extremely sophisticated ICBMs with a high rate of kill.

The concept these men have in mind would be long jumps beyond Nike-X. The antimissile-missile system they envisage might in fact clobber ICBMs a thousand or more miles from target or even before they were airborne.

The Russians are experimenting heavily with electromagnetic pulse and radiation from strong nuclear explosions for killing missiles in

The Russians have been putting large sums into jamming and other electronic countermeasures. They have assigned large numbers of scientists to research on a series of wayout blue sky communications methods not susceptible to any known interference.

The worried U. S. scientists are not comforted by the thought that the United States now heavily outweighs the Soviet Union in nuclear weapons.

Unclassified studies include estimates that the United States now has more than 50,000 nuclear weapons, compared with 5,000 to 8,000 in Soviet hands.

But these U. S. research men point out that regardless of this 1964 U. S. supremacy, and sizable American research and development expenditures, U. S. miscalculation on what research leads to push heavily, or better Russian guesses, or Russian

explosions for killing missiles in their silos before they are fired.

—Development of a family of ICBMs so accurate that more than half of those fired would hit within 500 yards of target.

The extremely large boosters available to the Russians make possible their use of larger, more reliable guidance systems. Russian technical literature indicates the Reds are putting a sizable chunk of top caliber manpower into improving their electronics and guidance.

Some scientists here predict this super accuracy guidance before 1972.

—Development of a military world-wide communications system invulnerable to electronic interference (electronic warfare countermeasures) or to radiation from nuclear blasts.

luck, or more Russian funds could put the Reds ahead in one or all of these three key research fields.

There is deep concern here that the Russians are putting more money and effort in these key areas than is the United States.

U. S. research has gone all-out on "penetration aids" for ICBMs. Top Defense Department men are convinced the United States can devise ways to get missiles through, regardless of Russian improvements in antimissile defense.

But despite this confidence, the Russians, if their research goes well, might be able to knock out U. S. missiles before they even got out of their silos. Then penetration aids would be of no value.

Or the Reds could knock out U. S. communications.

Page 2A The Kansas City Star, Friday, January 21, 1983 ★

Critics say U.S. has plans to win a nucle

By Tim Ahern
Associated Press writer

Washington—Ever since President Reagan took office, his administration has been pestered by the question of whether it is more willing than past administrations to fight a nuclear war.

Critics contend that his advisers have drafted a plan to win a nuclear war with the Soviet Union. Public opinion polls have repeatedly said that many Americans are concerned about his willingness to use nuclear weapons.

Analysis

Administration officials deny that premise.

"There is nothing new about our policy," Defense Secretary Caspar Weinberger wrote last year in a letter to dozens of newspapers.

U.S. policy on use of atomic weapons is spelled out in several highly classified documents. None has been released publicly and administration officials refuse to even acknowledge the existence of one.

But a year-old document drafted to provide background on military spending requests has been

> **"Everybody's going to make it if there are enough shovels to go around."**
> —T.K. Jones, deputy undersecretary of Defense

tration as planning to win a "protracted nuclear war."

Several officials familiar with U.S. policy—each of whom talked on the condition that he not be identified—agreed that one problem is a public perception that the administration is more ready than past administrations to use the weapons. The officials said the belief arose largely from injudicious public statements by officials.

T.K. Jones, deputy undersecretary of Defense, told the *Los Angeles Times* last year that the United States could recover from an atomic war in two to four years. "Everybody's going to make it if there are enough shovels to go around," he said, explaining the shovels were needed to dig primitive civil defense shel-

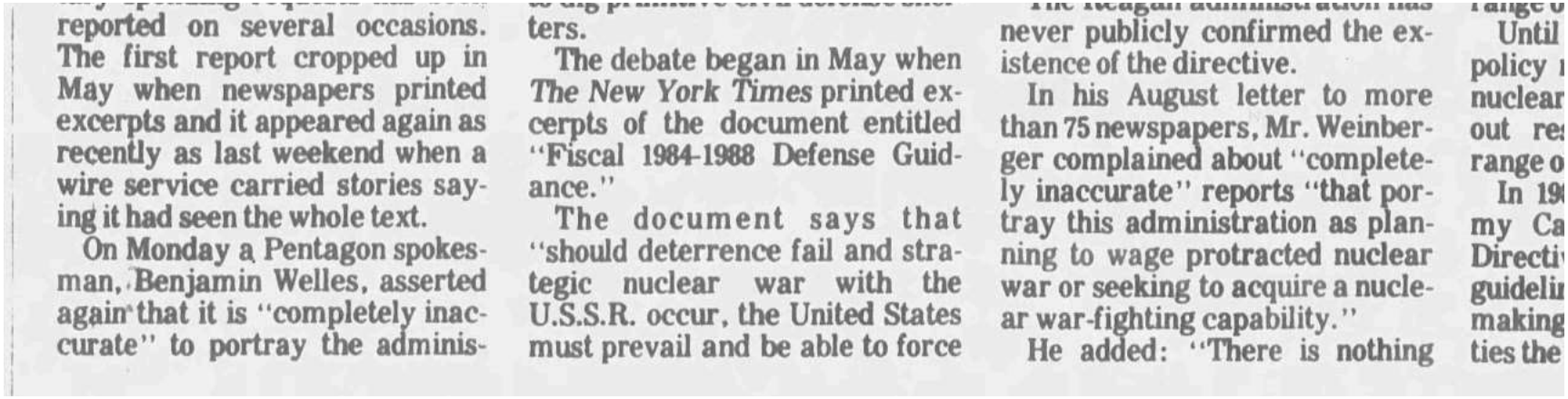
the Soviet Union to seek earliest termination of hostilities on terms favorable to the United States," according to published reports.

That philosophy was attacked by those in the nuclear freeze movement as meaning the Reagan administration thought a nuclear war was "winnable." Such a view, according to critics, makes atomic war more likely.

The Los Angeles Times reported in August that Mr. Reagan had approved National Security Decision Direction 13, which directed the Pentagon to create a "master acquisition plan" to develop nuclear weapons to carry out the U.S. policy. The story said the document contemplates the possibility that a nuclear war could last up to six months.

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reported on several occasions. The first report cropped up in May when newspapers printed excerpts and it appeared again as recently as last weekend when a wire service carried stories saying it had seen the whole text.

On Monday a Pentagon spokesman, Benjamin Welles, asserted again that it is "completely inaccurate" to portray the administ-

ters.

The debate began in May when *The New York Times* printed excerpts of the document entitled "Fiscal 1984-1988 Defense Guidance."

The document says that "should deterrence fail and strategic nuclear war with the U.S.S.R. occur, the United States must prevail and be able to force

never publicly confirmed the existence of the directive.

In his August letter to more than 75 newspapers, Mr. Weinberger complained about "completely inaccurate" reports "that portray this administration as planning to wage protracted nuclear war or seeking to acquire a nuclear war-fighting capability."

He added: "There is nothing

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ABOVE: **originally SECRET diagrams showing the immense casualty reductions for simple shelters and local (not long distance as in 1939) evacuation, from a UK Home Office Scientific Advisers' Branch report CD/SA 72 (UK National Archives document reference HO 225/72), "Casualty estimates for ground burst 10 megaton bombs", which exposed the truth behind UK Cold War civil defence (contrary to Russian propaganda against UK defence, which still falsely claims there was no scientific basis for anything, playing on the fact the data was classified SECRET). Evacuation plus shelter eliminates huge casualties for limited attacks; notice that for the 10 megaton bombs (more than 20 times the typical yield of today's MIRV compact warheads!), you need 20 weapons, i.e. a total of 10 x 20 = 200 megatons, for 1 million killed, if civil defence is in place for 45% of people to evacuate a city and the rest to take shelter. Under civil defence, therefore, you get 1 million killed per 200 megatons. This proves that civil defence work to make deterrence more credible in Russian eyes. For a discussion of the anti-civil defence propaganda scam in the West led by Russian agents for Russian advantage in the new cold war, just read posts on this blog started in 2006 when Putin's influence became clear. You can read the full PDF by clicking the link here.** Or see the files **here**.

~~SECRET~~ Declassified Dec 1988 J. e Cottenden

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Casualty Estimates for ground burst 10 Megaton bombs

1956

Summary

Tentative estimates of casualties from up to 45 ground burst 10 megaton bombs on British cities are estimated for various conditions of shelter and evacuation.

Casualties from an attack aimed in the optimum way (to cause casualties) when there is no shelter or evacuation are found to range from over 2½ million killed by a single bomb to just over half a million per bomb by 45 bombs. The total evacuation of the evacuation areas shown in Fig. 8 is found to reduce fatal casualties from this attack by from 99 to 84% depending on the number of bombs. Similarly the evacuation of the priority classes (45%) combined with the provision of a high standard of shelter for the remaining inhabitants of the evacuation areas would reduce fatal casualties from this attack by from 99 to 86% depending on the number of bombs. These are the maximum savings that could result from these policies. If the enemy adjusted his attack so that all his bombs were aimed at reception areas, thus achieving the maximum casualties among the evacuated and/or sheltered population, the reduction in fatal casualties would range from 62 to 44% for the policy of 100% evacuation, and from 79 to 65% for the policy of 45% evacuation combined with shelter. In the event of either of these policies being adopted the enemy would probably make some adjustments in his attack without going as far as in the limiting case above of aiming all his bombs at reception areas. The saving in casualties would then be intermediate between the two sets of figures given above.

Introduction

1. The object of the present paper is to arrive at the best possible estimate of the casualties from up to 45 ground burst 10 megaton bombs distributed in various ways over British cities so as to compare the effects of a number of possible shelter and evacuation policies. The extremely approximate nature of many of the assumptions on which this assessment is based must, however, be emphasised. Direct observational or experi-

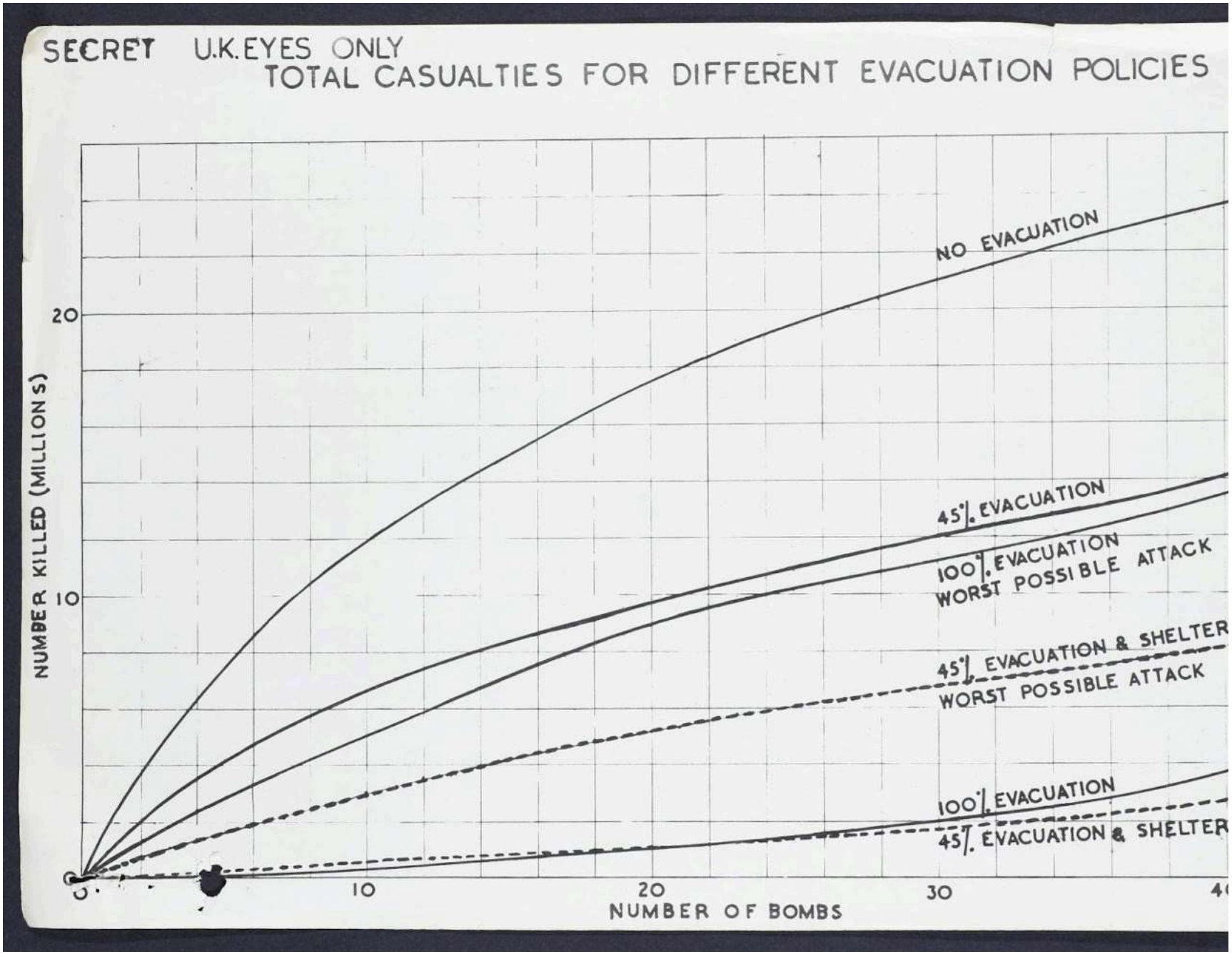
mental data are not available in many cases which means that the resulting estimates of casualties are liable to considerable errors. It might, in fact, be argued that the poor quality of the basic data does not justify the detailed methods adopted in this note. The advantages of the method are, however, that they enable the effect on the total casualties of each of the assumptions to be explored, and the estimates to be refined from time to time as fresh data become available. Moreover by setting out the assumptions in this way attention tends to be focussed on them, thus provoking criticism and discussion.

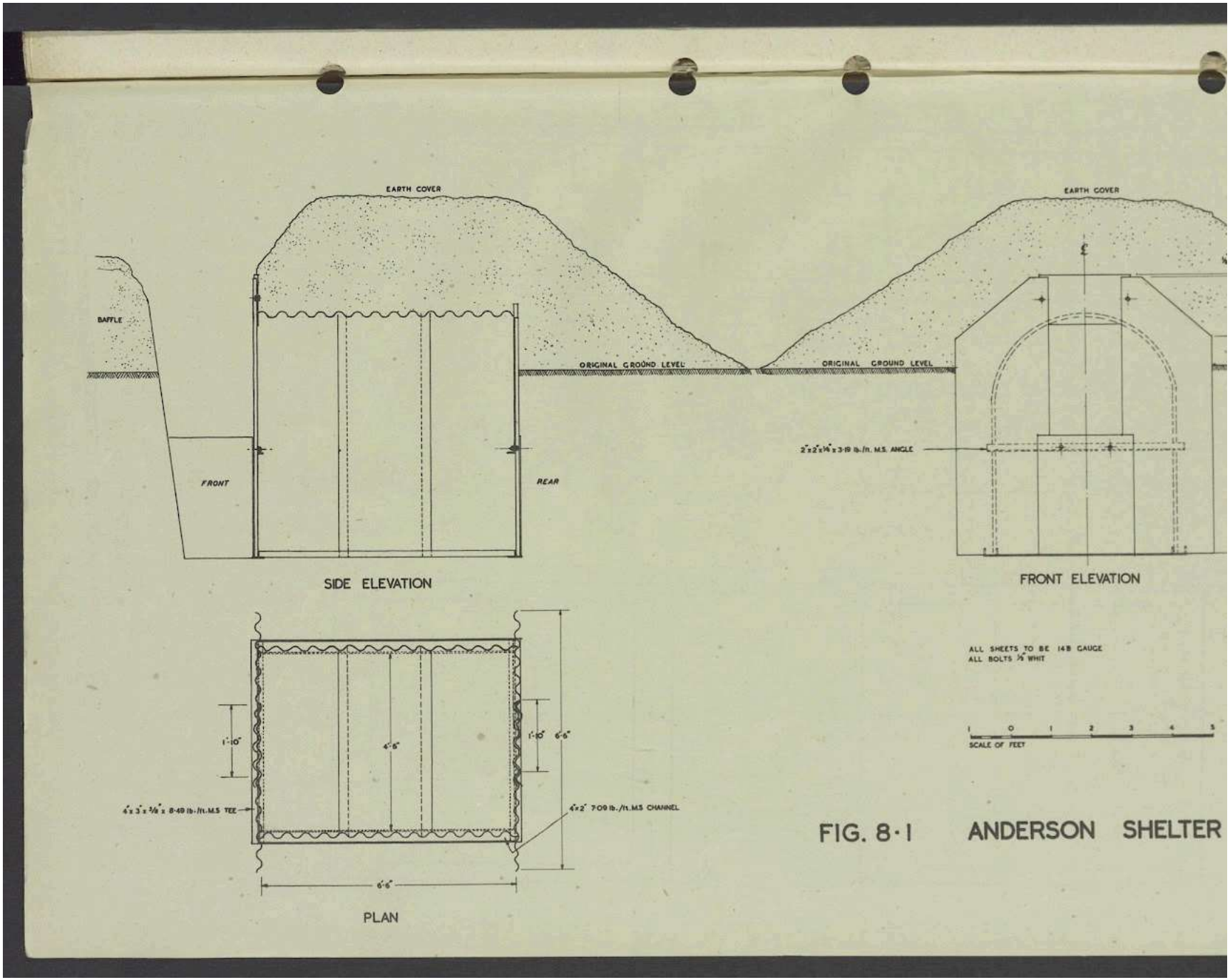
2. For a population under some sort of cover (i.e. not in the open) two of the four main effects of the explosion of megaton weapons dominate in producing casualties. These two effects are blast and radioactive fallout. Of the other two effects heat flash, though a serious casualty producer among people in the open, will cause no direct casualties among a population under cover though it will produce a number of indirect casualties due to people being trapped in fires. Initial gamma radiation (and neutrons) will only cause casualties outside the range of blast

/casualties .....

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TOTAL CASUALTIES FOR DIFFERENT EVACUATION POLICIES
NUMBER KILLED (MILLIONS)
20
10
0
NO EVACUATION
45% EVACUATION
100% EVACUATION
WORST POSSIBLE ATTACK
45% EVACUATION & SHELTER
WORST POSSIBLE ATTACK
100% EVACUATION
45% EVACUATION & SHELTER
0
10
20
30
NUMBER OF BOMBS


EARTH COVER
BAFFLE
ORIGINAL GROUND LEVEL
FRONT
REAR
SIDE ELEVATION
EARTH COVER
ORIGINAL GROUND LEVEL
2"x2"x¼"x 3·19 lb./ft. M.S. ANGLE
FRONT ELEVATION
ALL SHEETS TO BE 14B GAUGE
ALL BOLTS ⅜" WHIT
1 0 1 2 3 4 5
SCALE OF FEET
1'-10"
4'-6"
1'-10"
6'-6"
4"x 3"x ⅜"x 8·49 lb·/ft.M.S TEE
4"x2" 7·09 lb./ft.M.S CHANNEL
6'-6"
PLAN
FIG. 8·1 ANDERSON SHELTER

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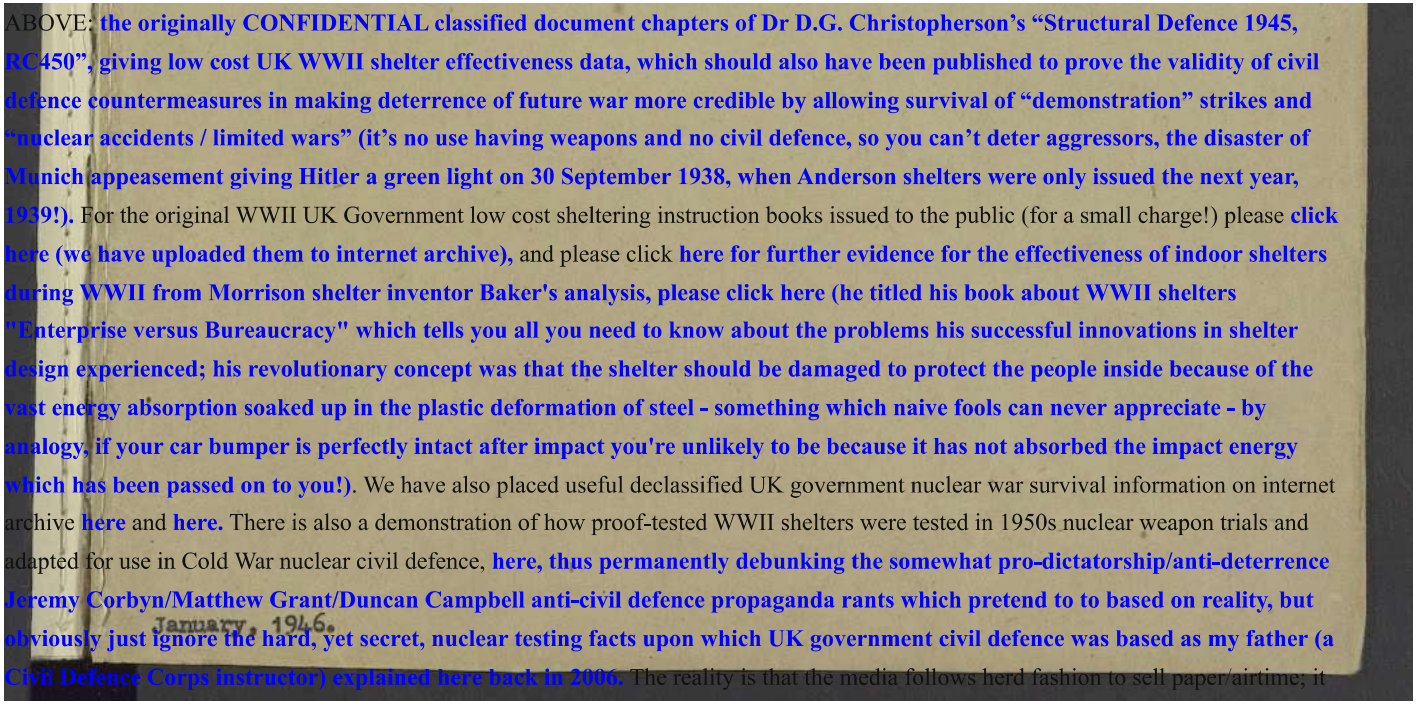
STRUCTURAL DEFENCE, 1945

by

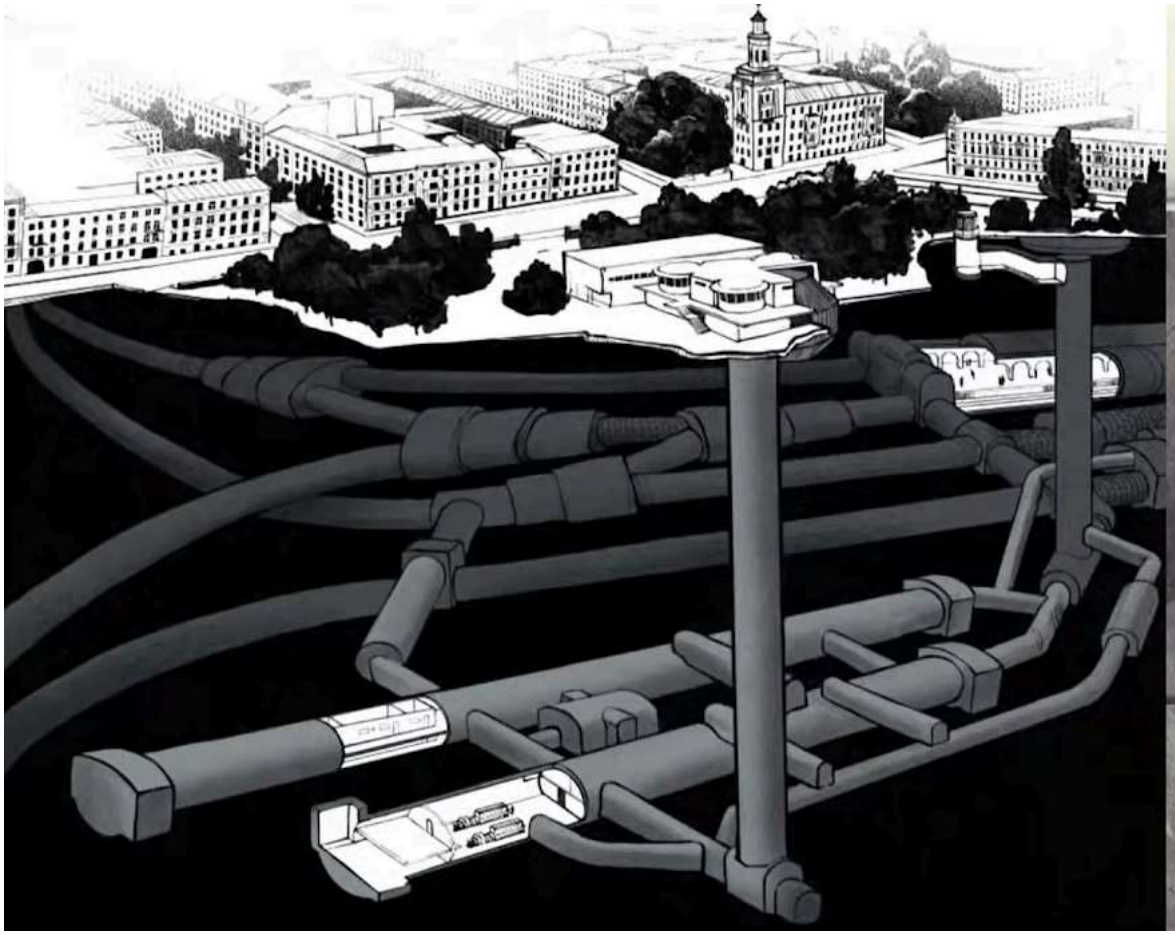
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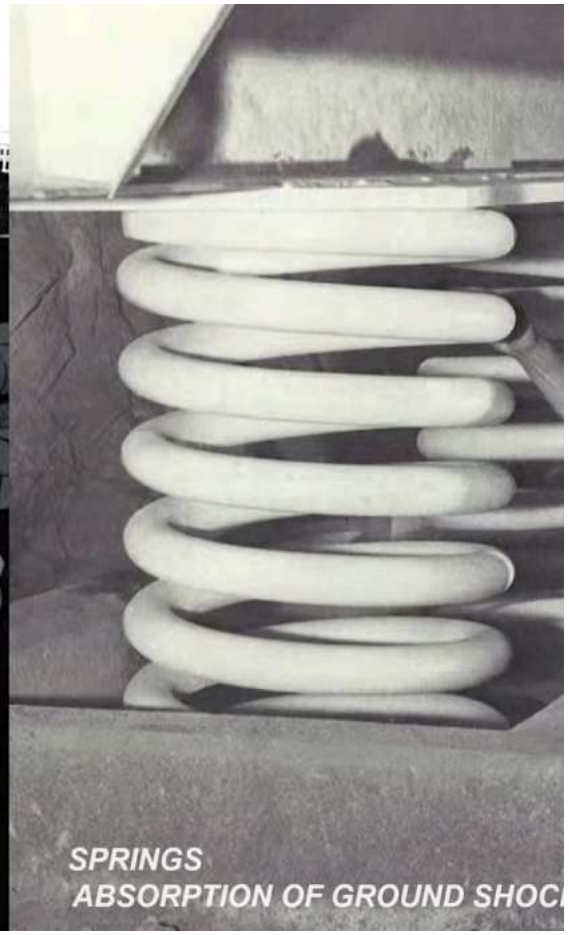
Fellow of Magdalene College, Cambridge.

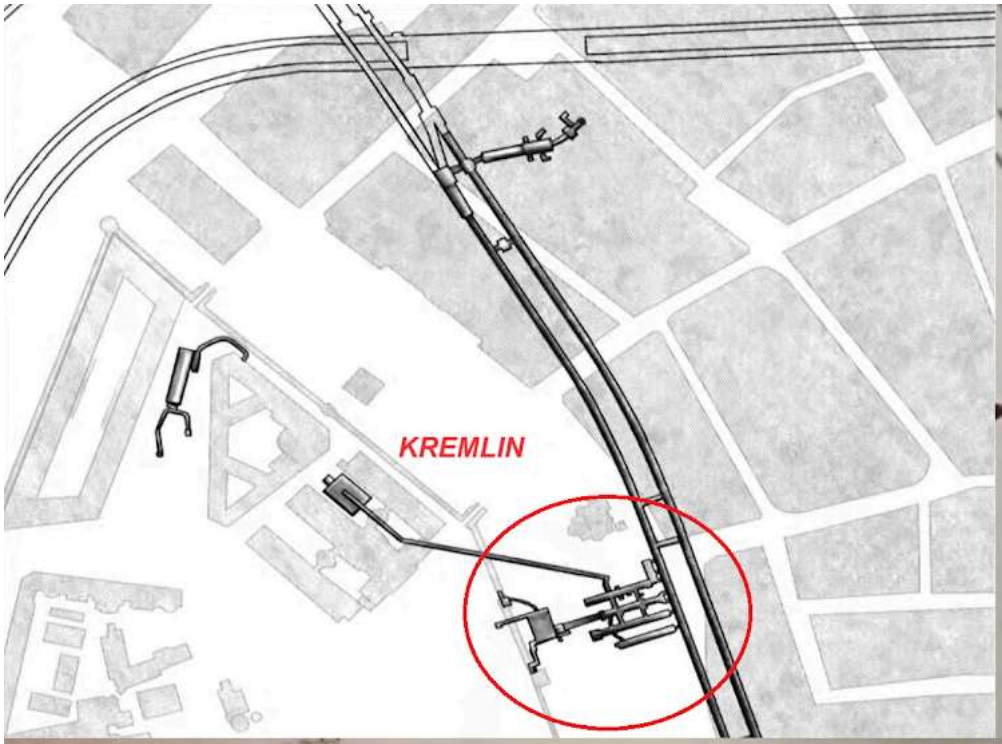
Formerly of the Research and Experiments Department, Ministry of Home Security

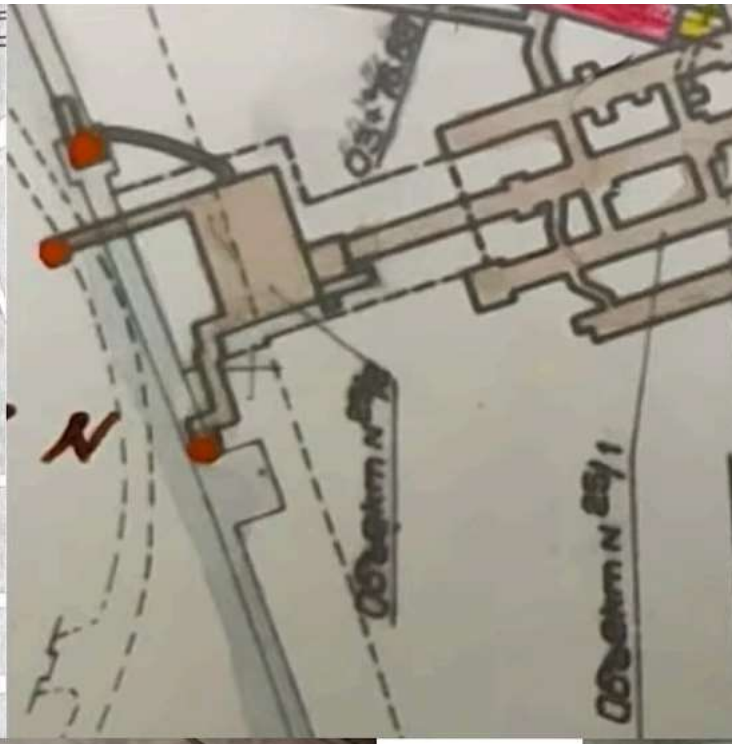


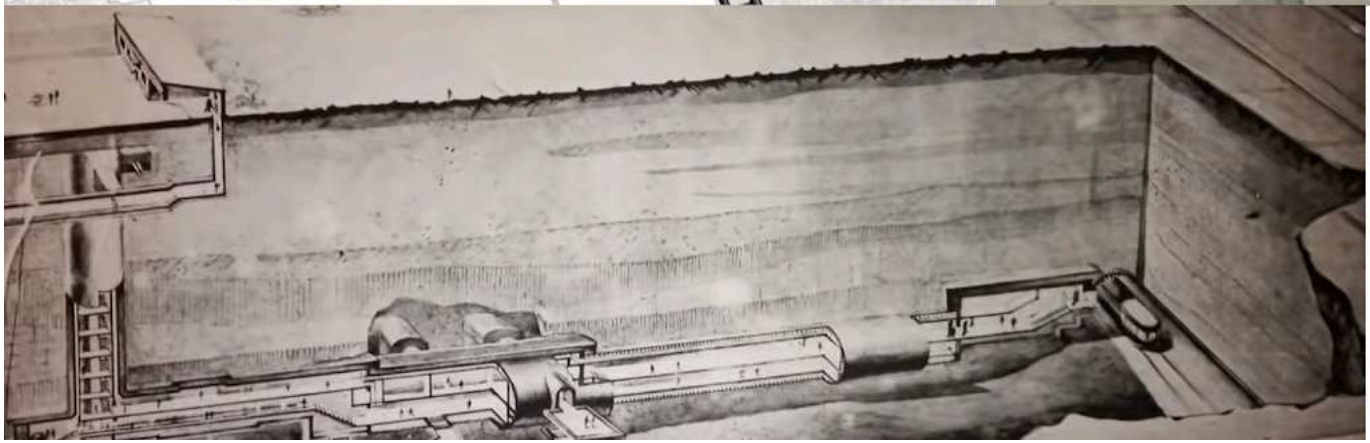
ABOVE: **the originally CONFIDENTIAL classified document chapters of Dr D.G. Christopherson's "Structural Defence 1945, RC450", giving low cost UK WWII shelter effectiveness data, which should also have been published to prove the validity of civil defence countermeasures in making deterrence of future war more credible by allowing survival of "demonstration" strikes and "nuclear accidents / limited wars" (it's no use having weapons and no civil defence, so you can't deter aggressors, the disaster of Munich appeasement giving Hitler a green light on 30 September 1938, when Anderson shelters were only issued the next year, 1939!).** For the original WWII UK Government low cost sheltering instruction books issued to the public (for a small charge!) please **click here (we have uploaded them to internet archive),** and please click **here for further evidence for the effectiveness of indoor shelters during WWII from Morrison shelter inventor Baker's analysis, please click here (he titled his book about WWII shelters "Enterprise versus Bureaucracy" which tells you all you need to know about the problems his successful innovations in shelter design experienced; his revolutionary concept was that the shelter should be damaged to protect the people inside because of the vast energy absorption soaked up in the plastic deformation of steel - something which naive fools can never appreciate - by analogy, if your car bumper is perfectly intact after impact you're unlikely to be because it has not absorbed the impact energy which has been passed on to you!).** We have also placed useful declassified UK government nuclear war survival information on internet archive **here** and **here.** There is also a demonstration of how proof-tested WWII shelters were tested in 1950s nuclear weapon trials and adapted for use in Cold War nuclear civil defence, **here, thus permanently debunking the somewhat pro-dictatorship/anti-deterrence Jeremy Corbyn/Matthew Grant/Duncan Campbell anti-civil defence propaganda rants which pretend to to based on reality, but obviously just ignore the hard, yet secret, nuclear testing facts upon which UK government civil defence was based as my father (a Civil Defence Corps instructor) explained here back in 2006.** The reality is that the media follows herd fashion to sell paper/airtime; it doesn't lead it. This is why it backed Nazi appeasement (cheering Chamberlain's 1938 handshakes with Hitler for instance) and only switched tune when it was too late to deter Nazi aggression in 1939; it made the most money that way. We have to face the facts!




SPRINGS
ABSORPTION OF GROUND SHOC







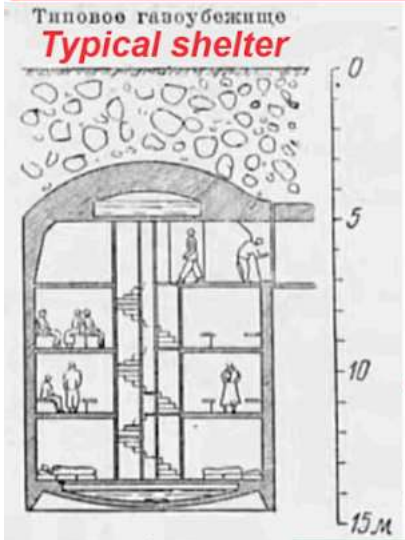
DETAILS OF SHAFTS UNDER BUILDINGS TO SHELTERS & SUBWAY TRAINS



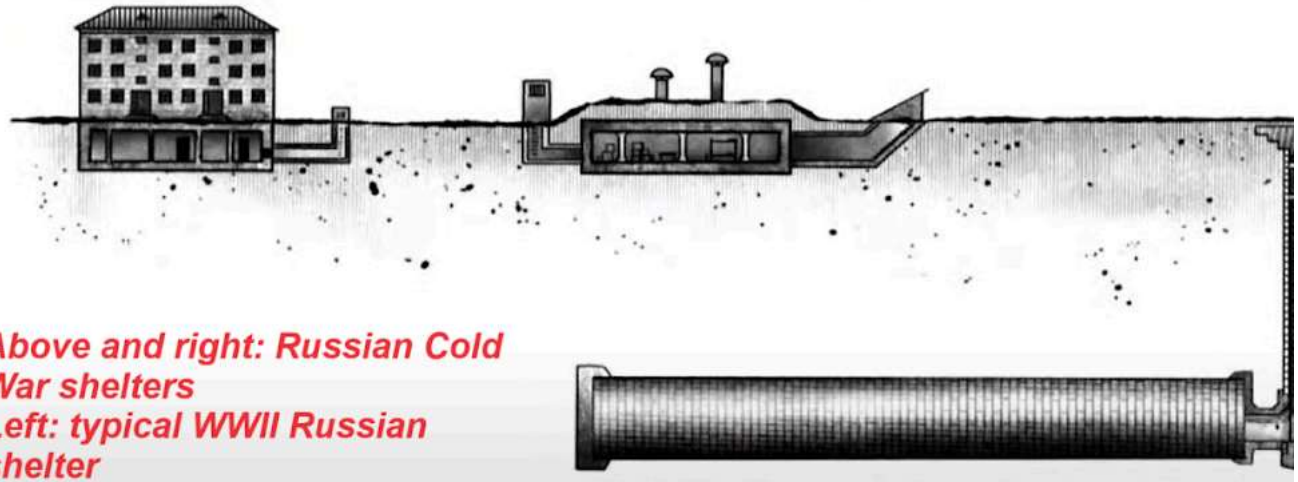
233,067 views Streamed live on 18 Apr 2021 - https://www.youtube.com/watch?v=Vpz0TOA1cLM

BUNKER 703 - SPECIAL STORAGE OF THE USSR MFA - MUSEUM OF MODERN FORTIFICATION

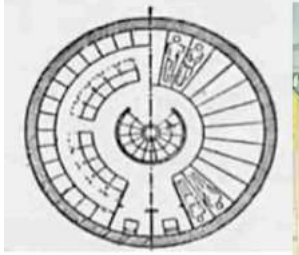
Lecture by historian Dmitry Yurkov dedicated to the declassified "bunkers" of Moscow. Based on a r history of Soviet special fortification. For the first time - about "metro 2" and "Stalin's bunkers" with myths, based on archival materials.

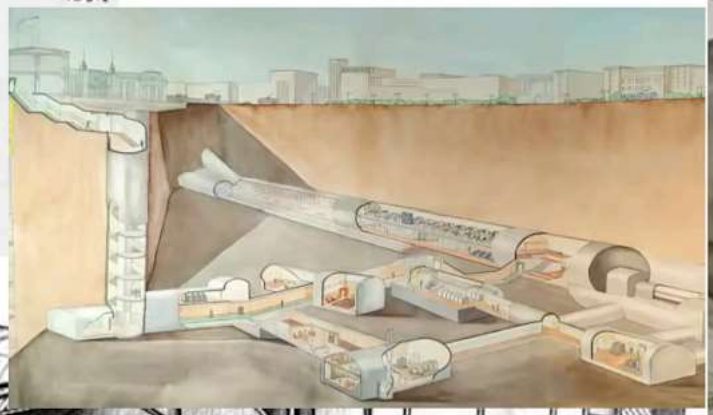


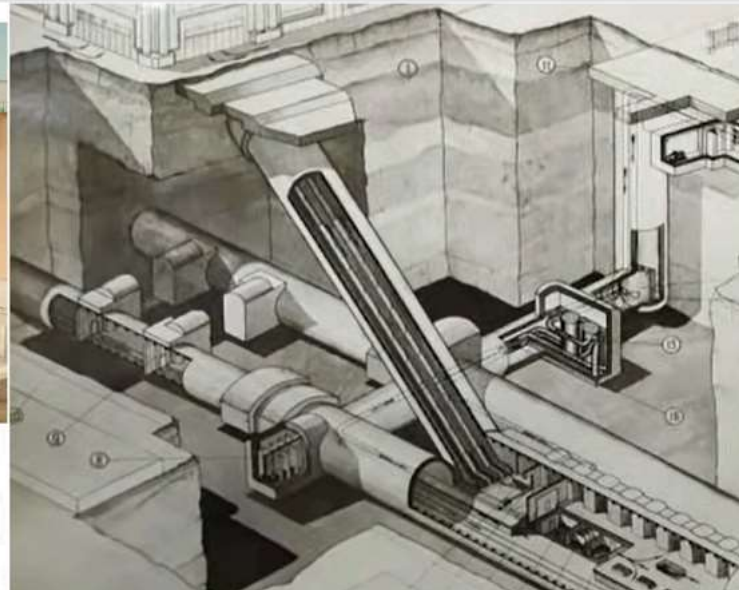
Typical shelter

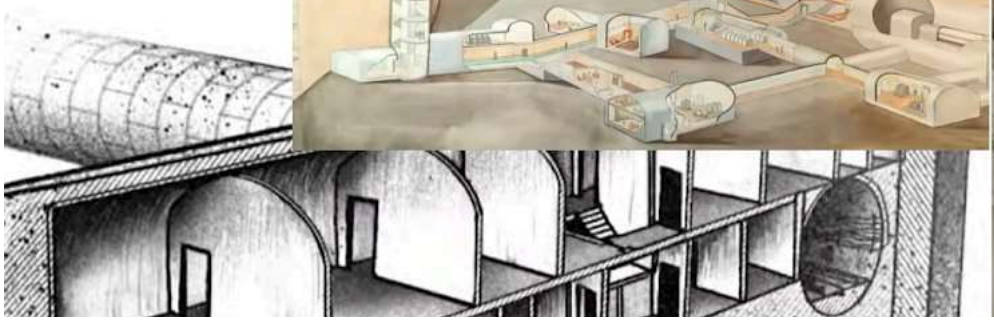


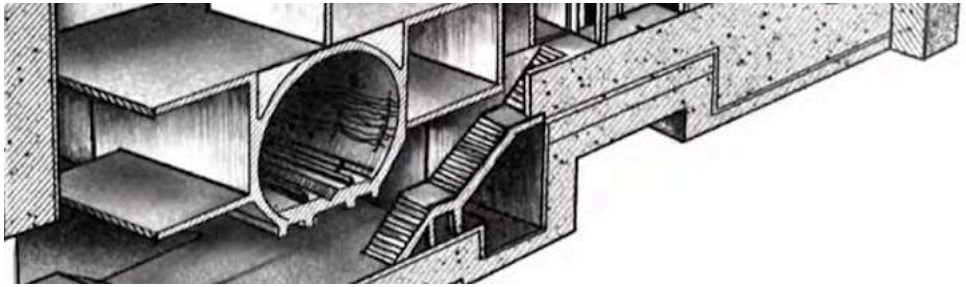
Above and right: Russian Cold War shelters
Left: typical WWII Russian shelter

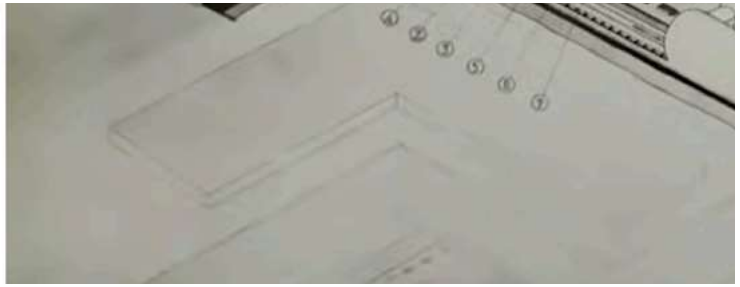




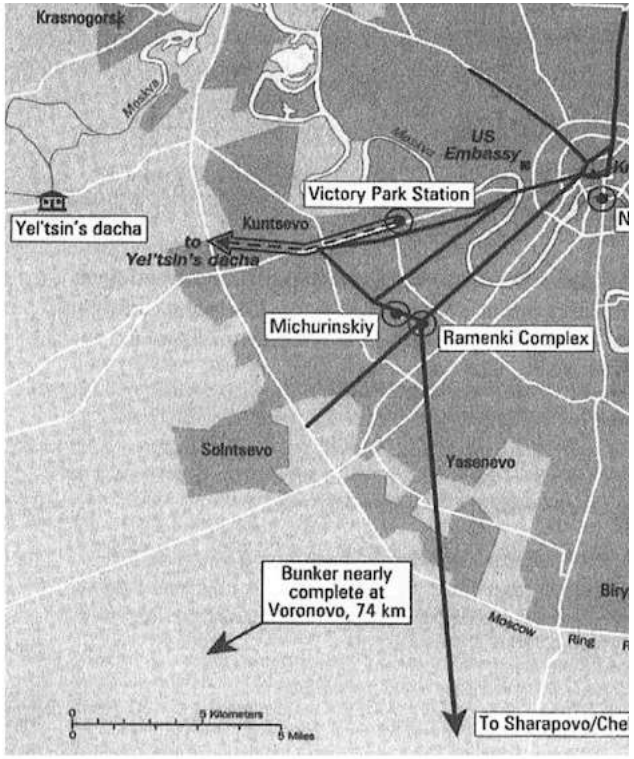








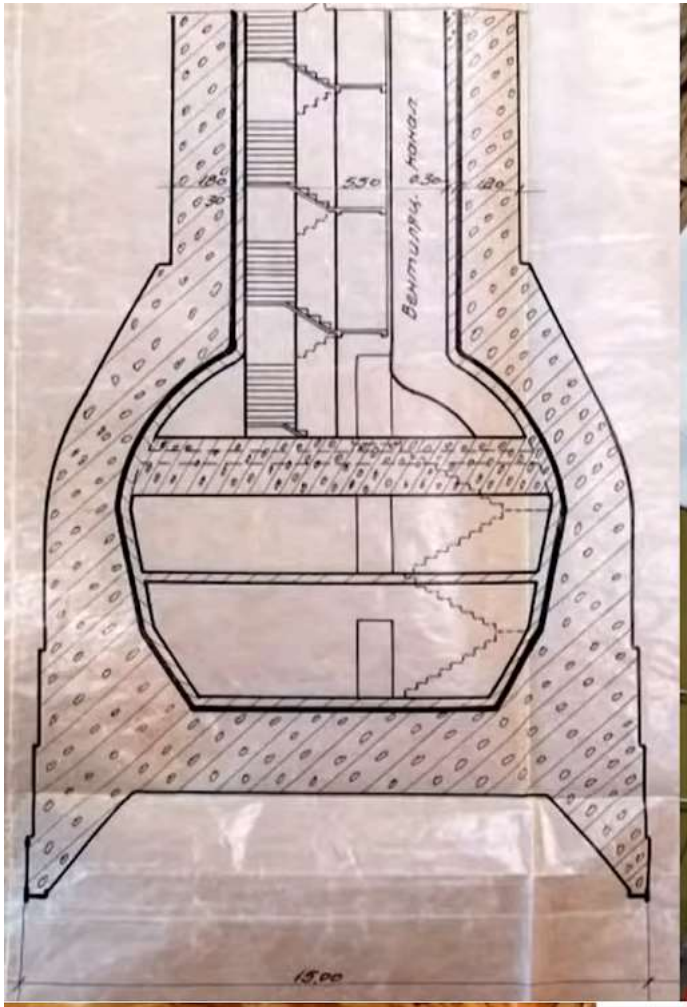

ДАЛЬНИЕ ВОЗДУХОЗАБОРЫ
(Distant Air Intakes)
Пл. Северянин
Покровское-Стрешнево
Стадион Измайлово
Крутицкая наб.
Пл. Матвеевское


Krasnogorsk
Moskva
US Embassy
Victory Park Station
Yel'tsin's dacha
Kuntsevo
to Yel'tsin's dacha
Michurinskiy
Ramenki Complex
Solntsevo
Yasenevo
Bunker nearly complete at Voronovo, 74 km
Moscow Ring
To Sharapovo/Che
0 5 Kilometers
0 5 Miles



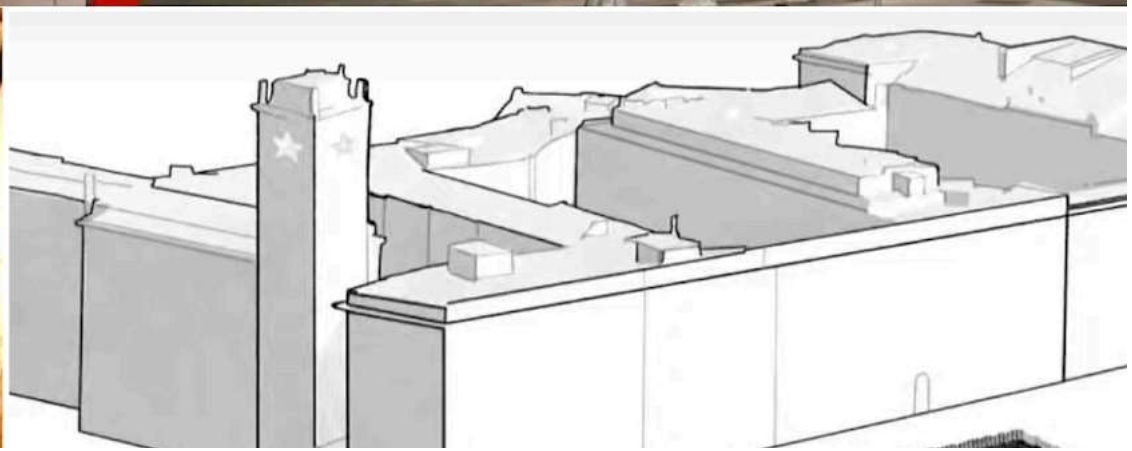




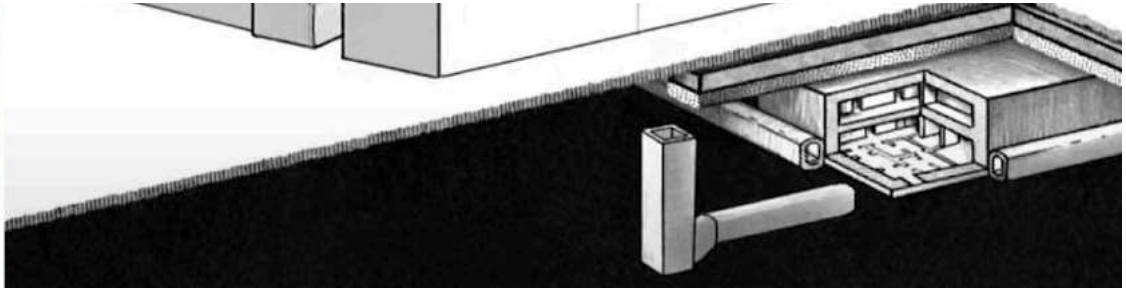

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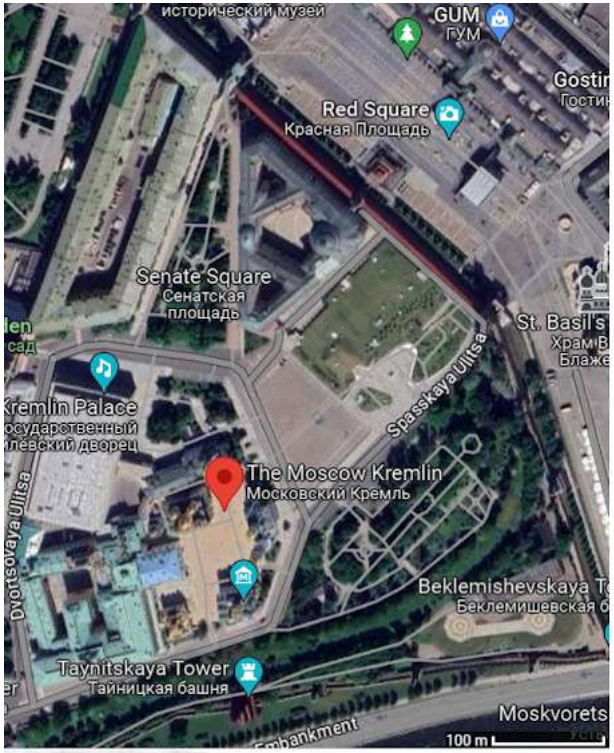




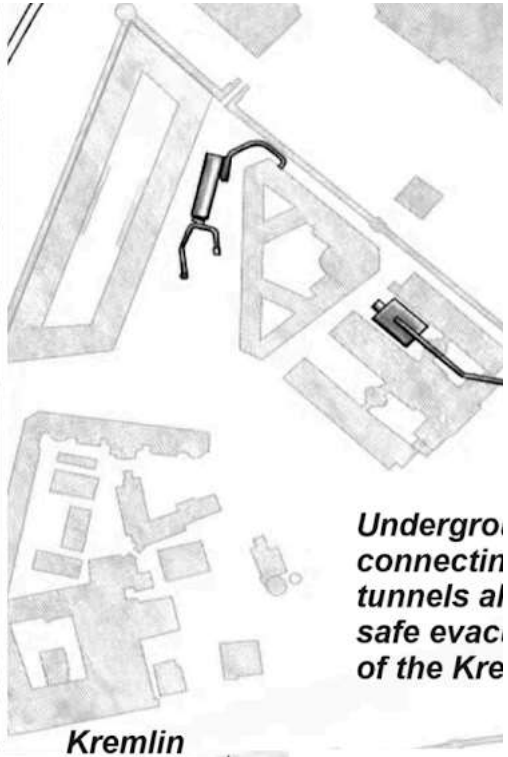


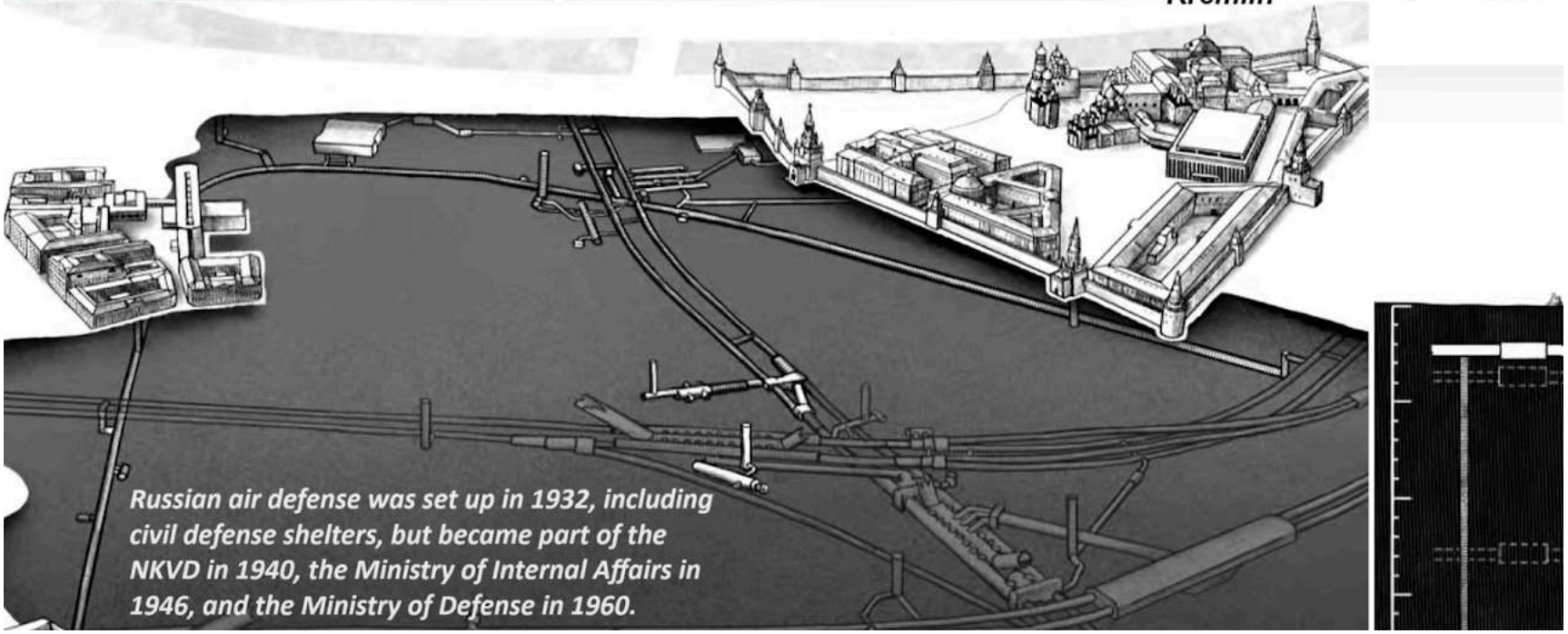





GUM
ГУМ
Red Square
Красная Площадь
Senate Square
Сенатская площадь
Kremlin Palace
The Moscow Kremlin
Московский Кремль
Spasskaya Ulitsa
Dvortsovaya Ulitsa
Taynitskaya Tower
Тайницкая башня
Moskvorets
100 m



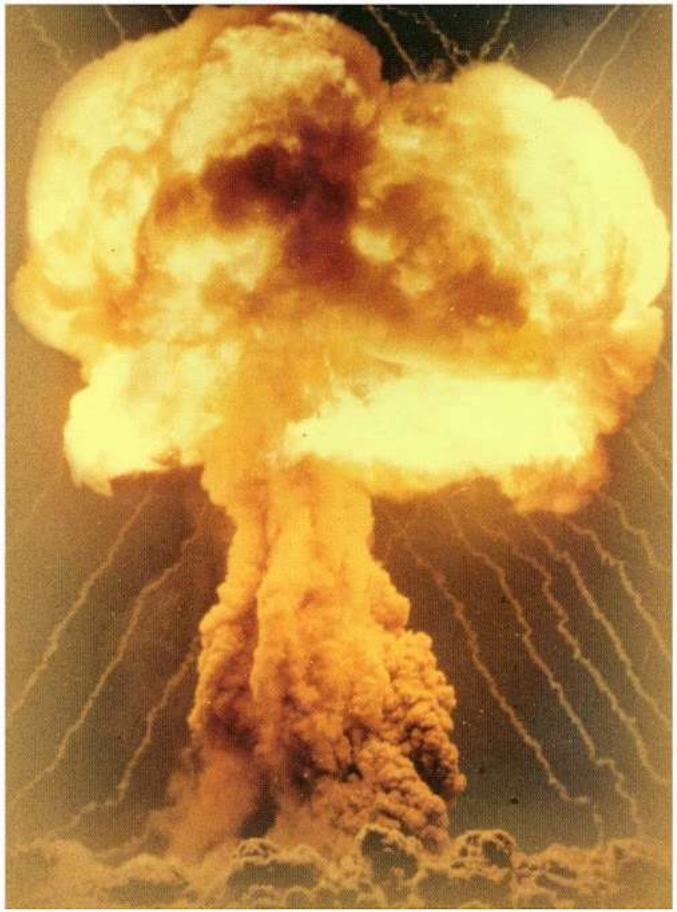

Undergro
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tunnels al
safe evac
of the Kre
Kremlin


Russian air defense was set up in 1932, including civil defense shelters, but became part of the NKVD in 1940, the Ministry of Internal Affairs in 1946, and the Ministry of Defense in 1960.


Moscow's subway and underground shelters network



UK's last tactical nuclear WE177 destroyed: 31



25 kt composite core (Pu239 within U235) tactical air burst on 9 October 1957, held by balloon at 300m altitude, Maralinga

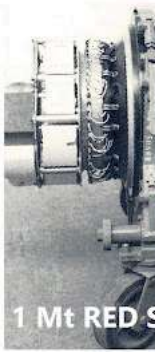


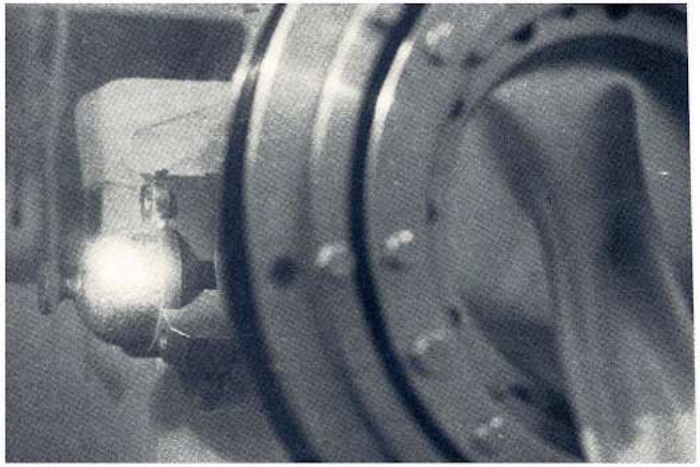
800 kt double-secondary ("Penney's full Tom, Dick and Harry", all spherically shaped) strategic air burst on 11 September 1958 at 2.65km altitude, Christmas Is.



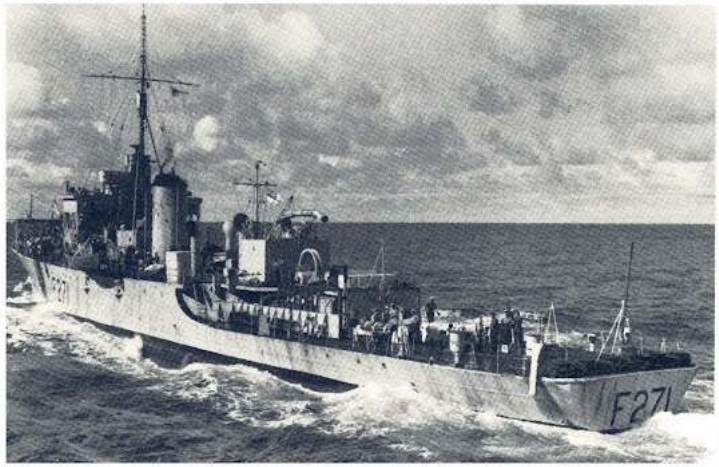


RED BEARD
ON TO A B





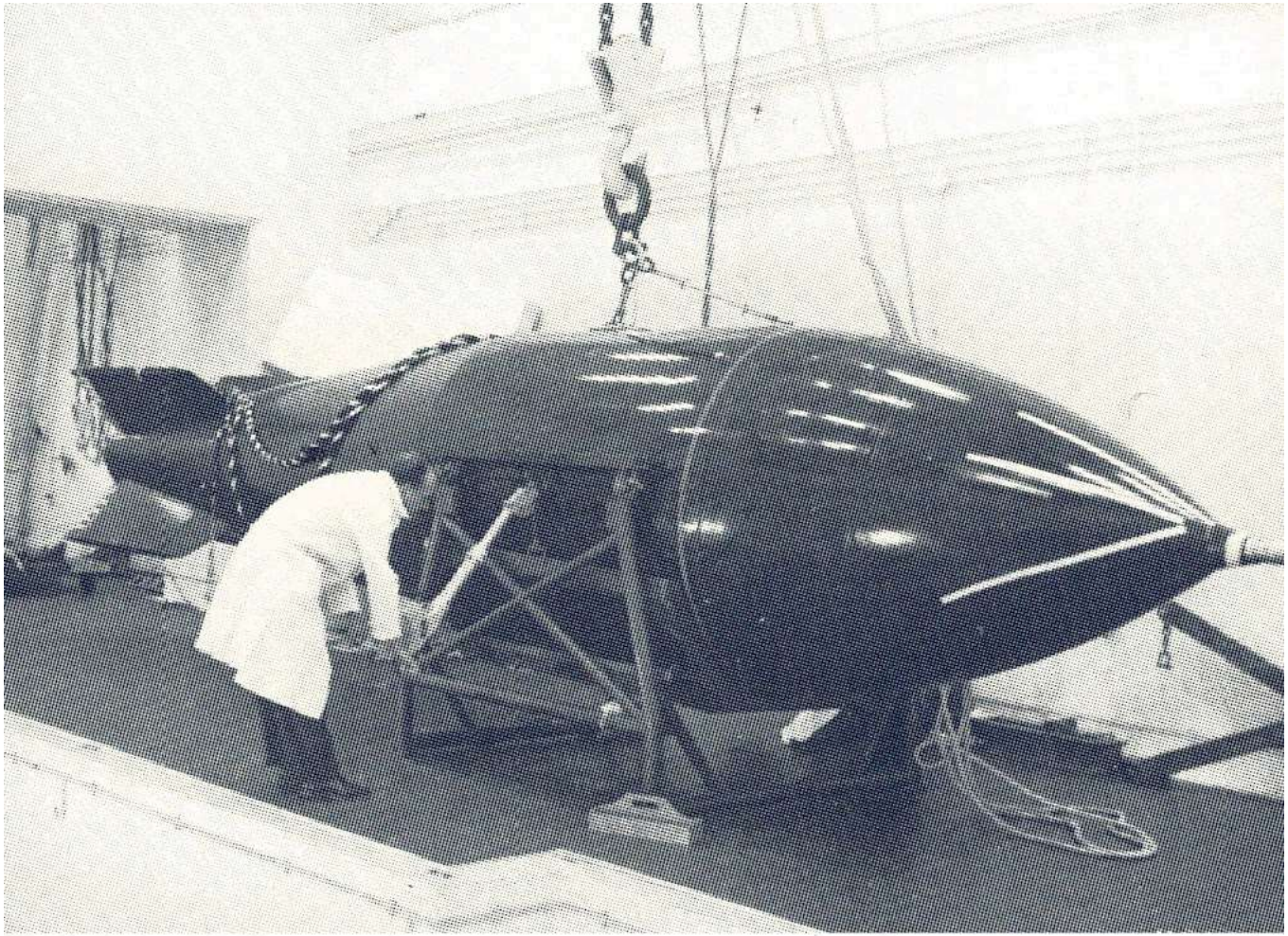
First plutonium hemisphere for 3 October 1952 Hurricane nuclear test, cooling inside a radiation proof glove box (glove port in thick glass window for hand insertion is visible at right), building A1.1, taken on 23 July 1952. Both hemispheres were flown out to Monte Bello by Sunderland flying boat.

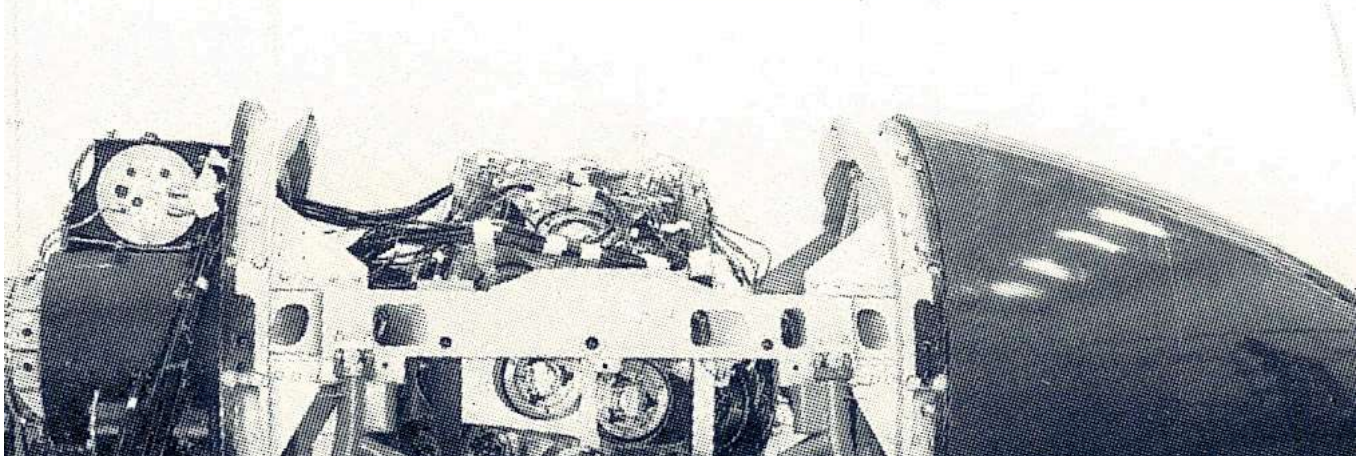


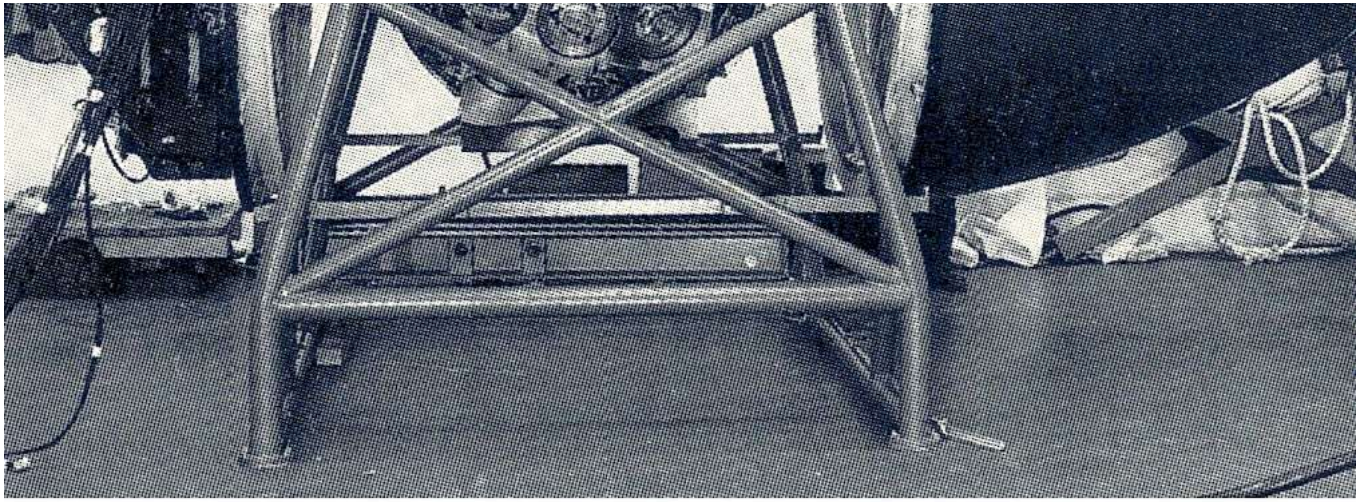
HMS Plym, a wartime convoy frigate of 1,450 tons, was loaded with a nuclear weapon and blown up with 25 kt yield on 3 October 1952 at Monte Bello, Australia, to simulate the effects of a clandestine Russian surprise attack on a harbour or military port in the model of the 1941 Pearl Harbor knockout blow.



The first Britis
(above, being
Farnborough i
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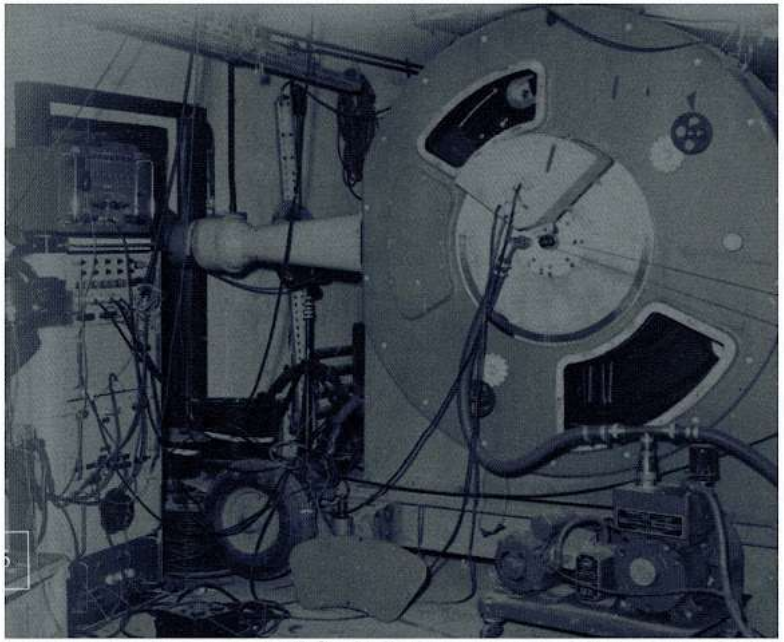


UK "GREEN GRASS" IMPLOSION DEVICE INSIDE BLUE DANUBE





3 Mt air burst Grapple Y, 28 April 1958, Christmas Is.



UK's 1952 AWRE Kerr Cell fireball cine camera with time resolution of 0.1µS (UK alternative to USA Rapatronic still photo technique)



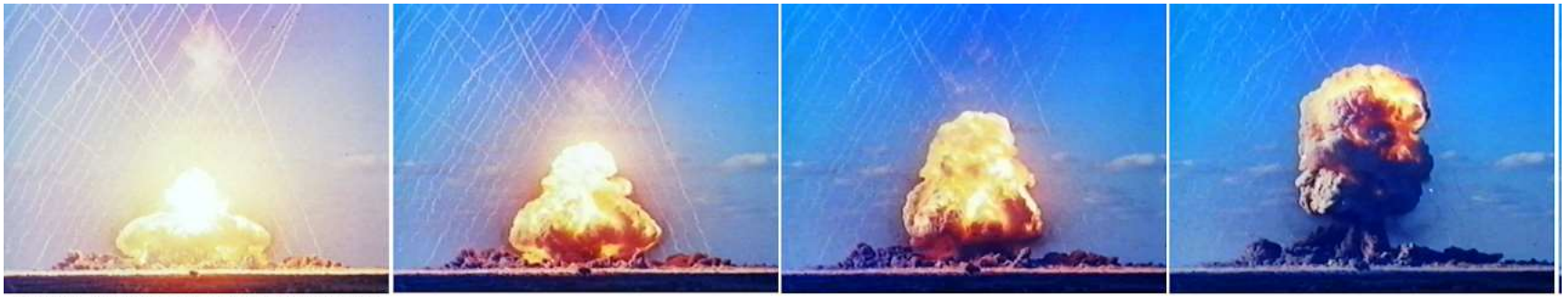
BUFFALO-1 CLOSE IN CAMERA, 15 KT AT 100 FT.
3 SECONDS

7 SECONDS

10 SECONDS

12 SECONDS

20 SECONDS

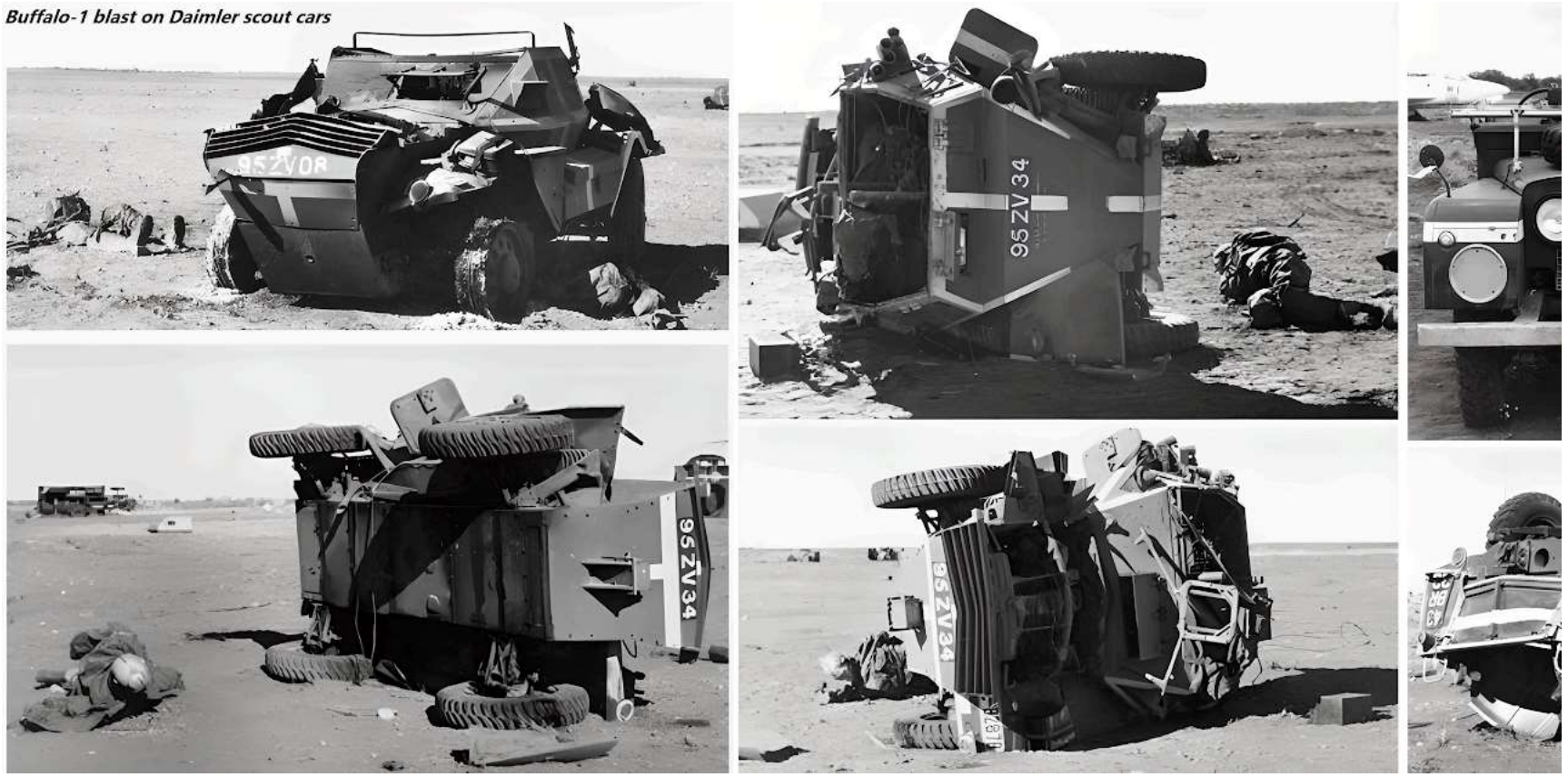


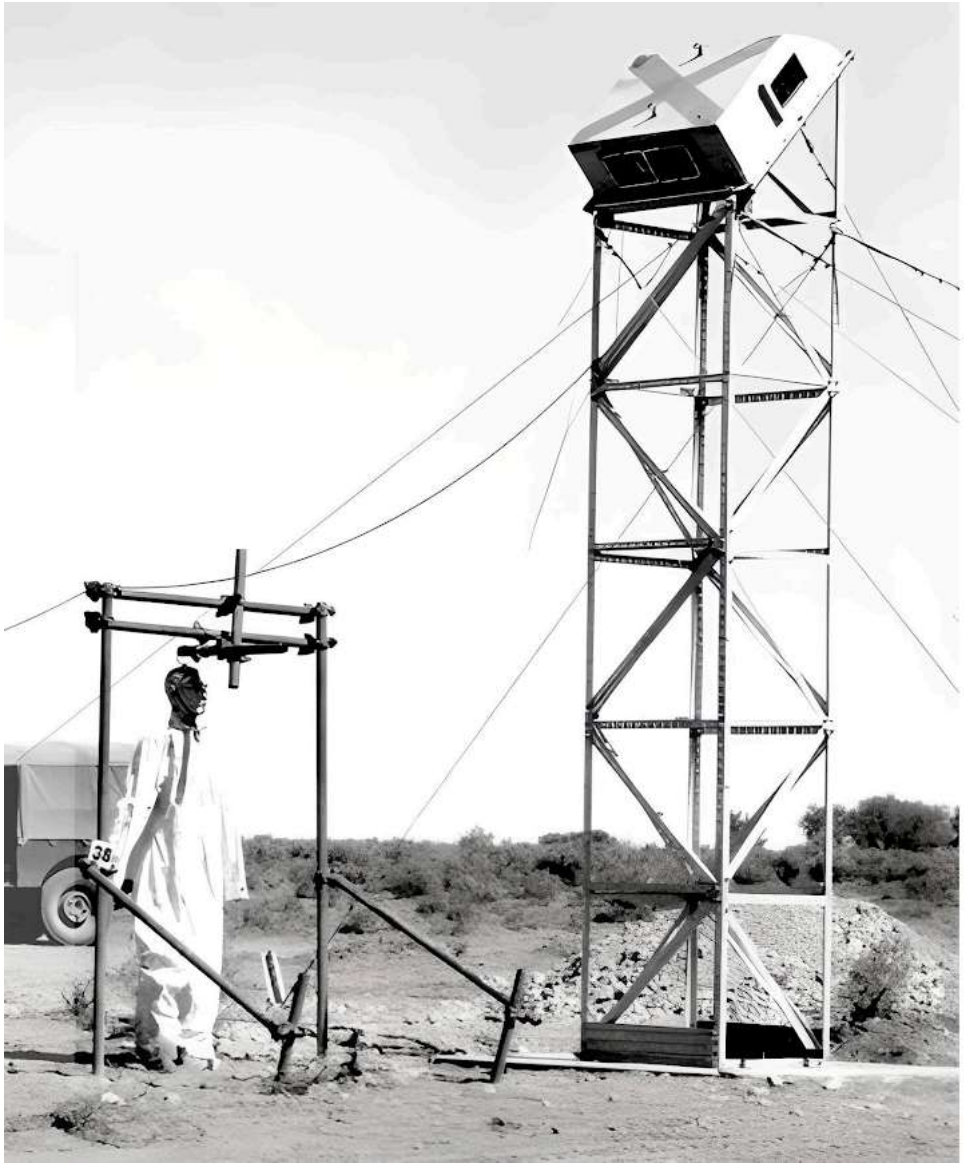
BUFFALO-1, 15 KT DETONATED AT 100 FT (TOWER)
3 SECONDS

5 SECONDS

7 SECONDS

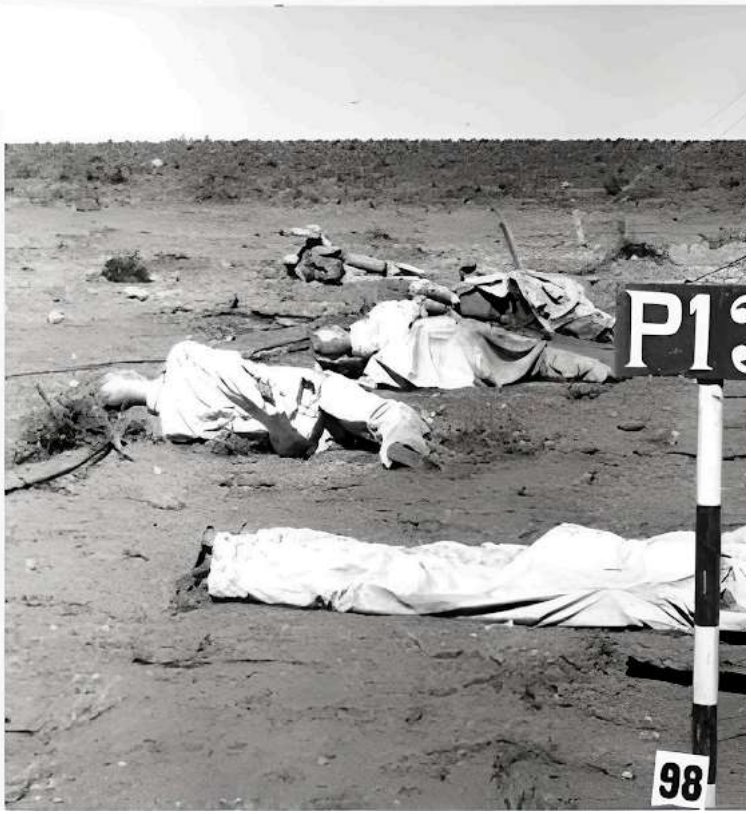
10 SECONDS





Operation Antler, Maralin

Dummies - standing and
cine camera blast effect fi




Operation Antler, Maralinga, 1957.
Nuclear blast effects on personnel
(dummies) in cars





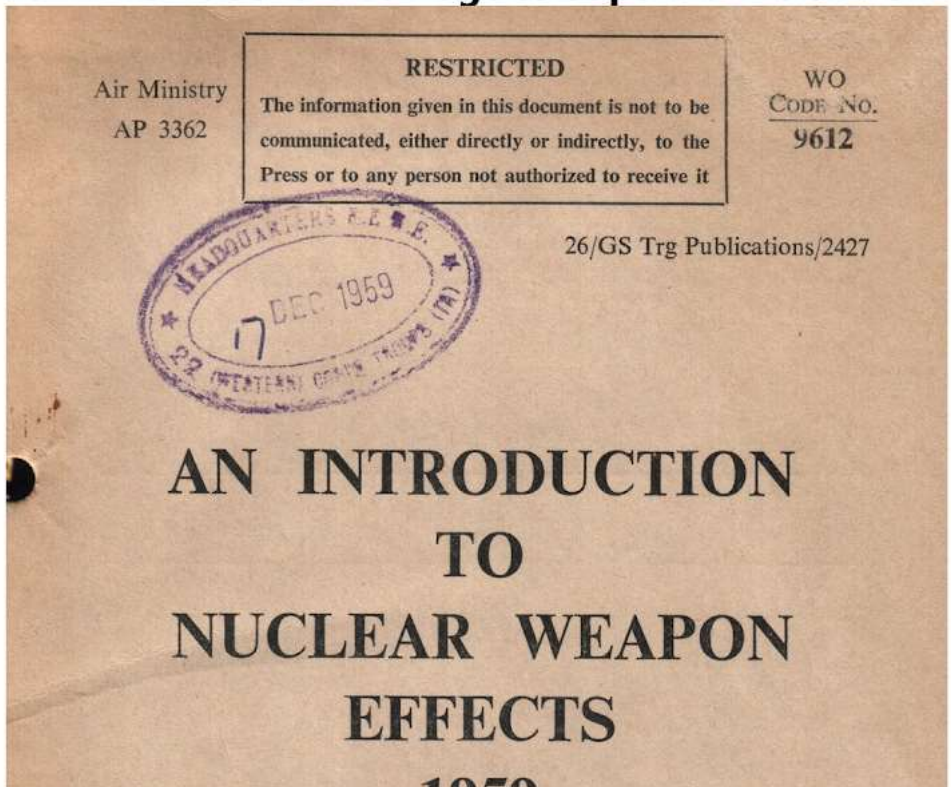
ABOVE: **British 1959 summary of the effects of nuclear weapons on military equipment, based on extensive British nuclear test data**. This information has been **declassified in the 1959 book *An introduction to nuclear weapon effects (UK War Office WO Code: 9612)*, available in the UK National Archives as document WO 279/476 - see https://discovery.nationalarchives.gov.uk/details/r/C1806524** - it is also well known to the Russians, Chinese et al., who have conducted such tests, yet is not included in the American Glasstone and Dolan nuclear effects bible: this is the key data for credibly deterring the invasions behind world wars. Without the full nuclear weapons effects facts being in the public arena, ill informed anti-nuclear people can campaign to disarm Western tactical nuclear weapons, thus enabling Putin to invade Ukraine and other countries. The photo below of the 1955 Nevada tested suitcase bomb Cleo II (Cleo II was tested as 2 kt Teapot-Post on 9 April 1955, 34.2" long, weight 322 lb) being used as a lunch table in the back of a station waggon on route to the bomb tower, is from Tom Ramos's 2022 book "How the Rad Lab helped avert nuclear war", which explains Cleo's linear implosion shape was too complex to simulate on computers, so Foster had to use many non-nuclear explosive "hydrotests" using depleted uranium cores: "The committee noted the multidimensionality of the Cleo made it difficult to model on a computer; its design pushed into areas of physics not well understood." Ramos also writes on pages 118-121 (his end notes say he read the secret test notes on this to confirm it) that Edward Teller's Lawrence Livermore Laboratory's 110 kt Castle-Koon test failed to yield the desired 1 megaton because the (rival) Los Alamos primary fission stage used in it yielded only half the x-rays needed to compress it: "Montgomery Johnson ... determined the calculations of energy flowing throughout the device had been wrong ... comparisons of the radiative transport calculations with measurements of the output of the Los Alamos primary had shown they differed by a factor of two. The device's design had been based on those calculations..."



BUFFALO-1: Severe damage to Supermarine Swift



Operation Antler, Maralinga, 1957.



Air Ministry
AP 3362

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WO
CODE NO.
9612

HEADQUARTERS R.E. 22 (WESTERN) CORPS TROOPS (TA) 17 DEC 1959

26/GS Trg Publications/2427

AN INTRODUCTION TO NUCLEAR WEAPON EFFECTS

1959

TABLE II.—**Target response table for military equipment (for 20 KT and 1 KT weapon)**

Equipment	Approximate peak Overpressure (psi)[1] (Taken from 20KT near surface burst results)[2]	Equivalent scaled psi for a 1 KT
Heavy tanks	55	85
	30	50
Scout cars	30	50
	20	28
	12	17
B vehicles	15	21
	10	14
	7	10
Field artillery (in open)	20	28
	15	21
	10	14
Field artillery (in gun pit) ..	20	28
Heavy mortars	40	75
	15	21
Heavy girder bridges (side on) ..	20	28
Wireless sets	15	21
	10	14
	3	4
4 men fire position—		
LMG embrasure and shelter ..	30	50
	18	27
	8	13
Main trench	30	50
Aircraft parked—		

1959

Promulgated by Command of the Army Council,

E. W. Playfair

Promulgated by Command of the Air Council,

M. J. Dean.

Crown Copyright Reserved

Aircraft parked—		
Bomber	5±2	7±2
Fighter	12	17
Aircraft airborne	10±5	14±7
Men (but remember other accompanying effects)		
Men standing in open	8	13
	5	7
	3	4
Men laying in open	12	17
	9	14
	6	8
Men in revetted trenches ..	20	28
	8	13

Damage level criteria for equipment

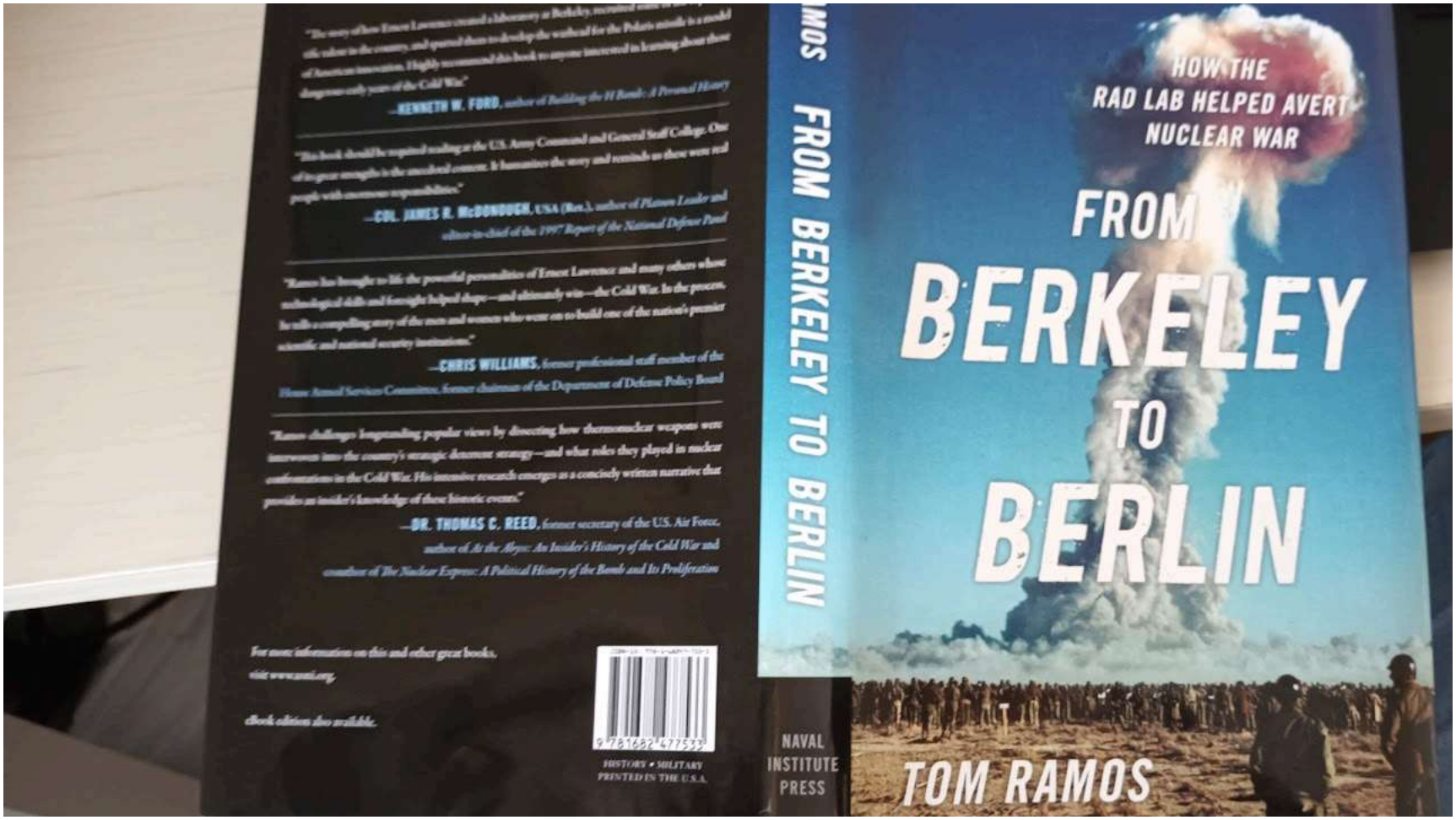
1. *Light damage.*—Will not interfere seriously with immediate u some repair to restore to full use.

2. *Moderate damage.*—Requires repair facilities available in field

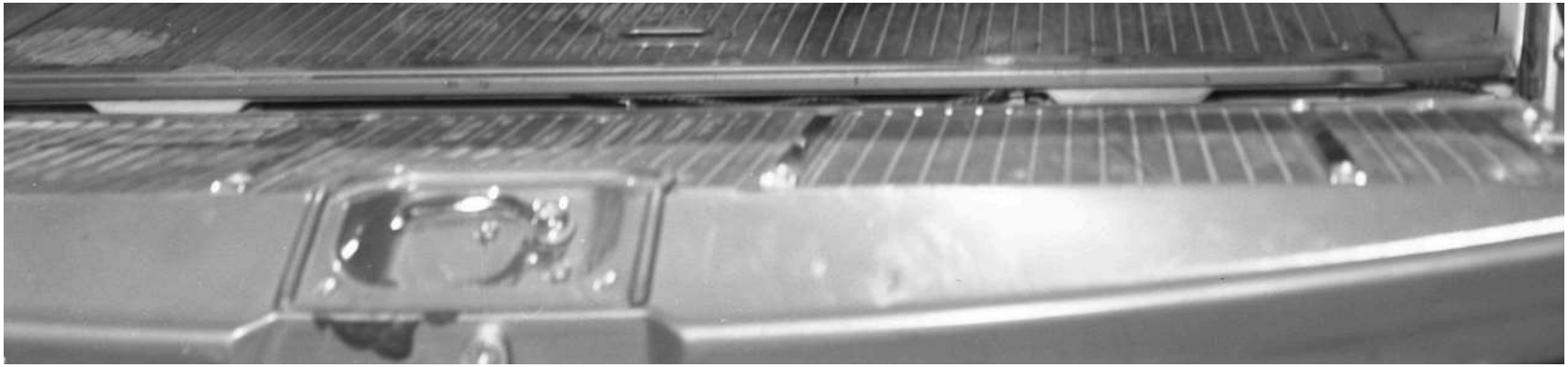
3. *Severe damage.*—Requires base repair.

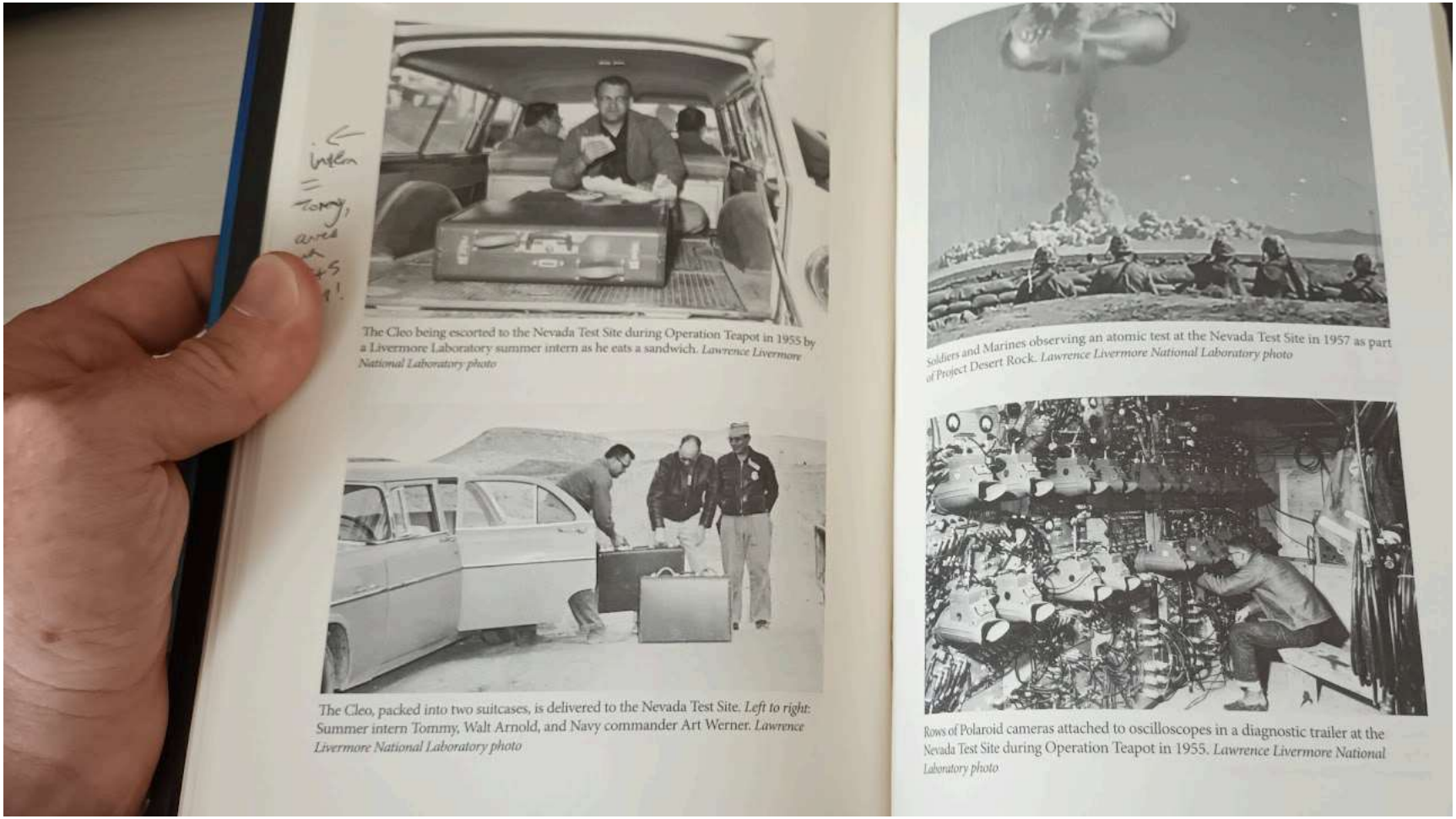
[1] For associated dynamic pressures, *see* Table III.

[2] Normalized for non-desert terrain.


HOW THE
RAD LAB HELPED AVERT
NUCLEAR WAR
FROM
BERKELEY
TO
BERLIN
TOM RAMOS
FROM BERKELEY TO BERLIN
NAVAL
INSTITUTE
PRESS
HISTORY • MILITARY
PRINTED IN THE U.S.A.





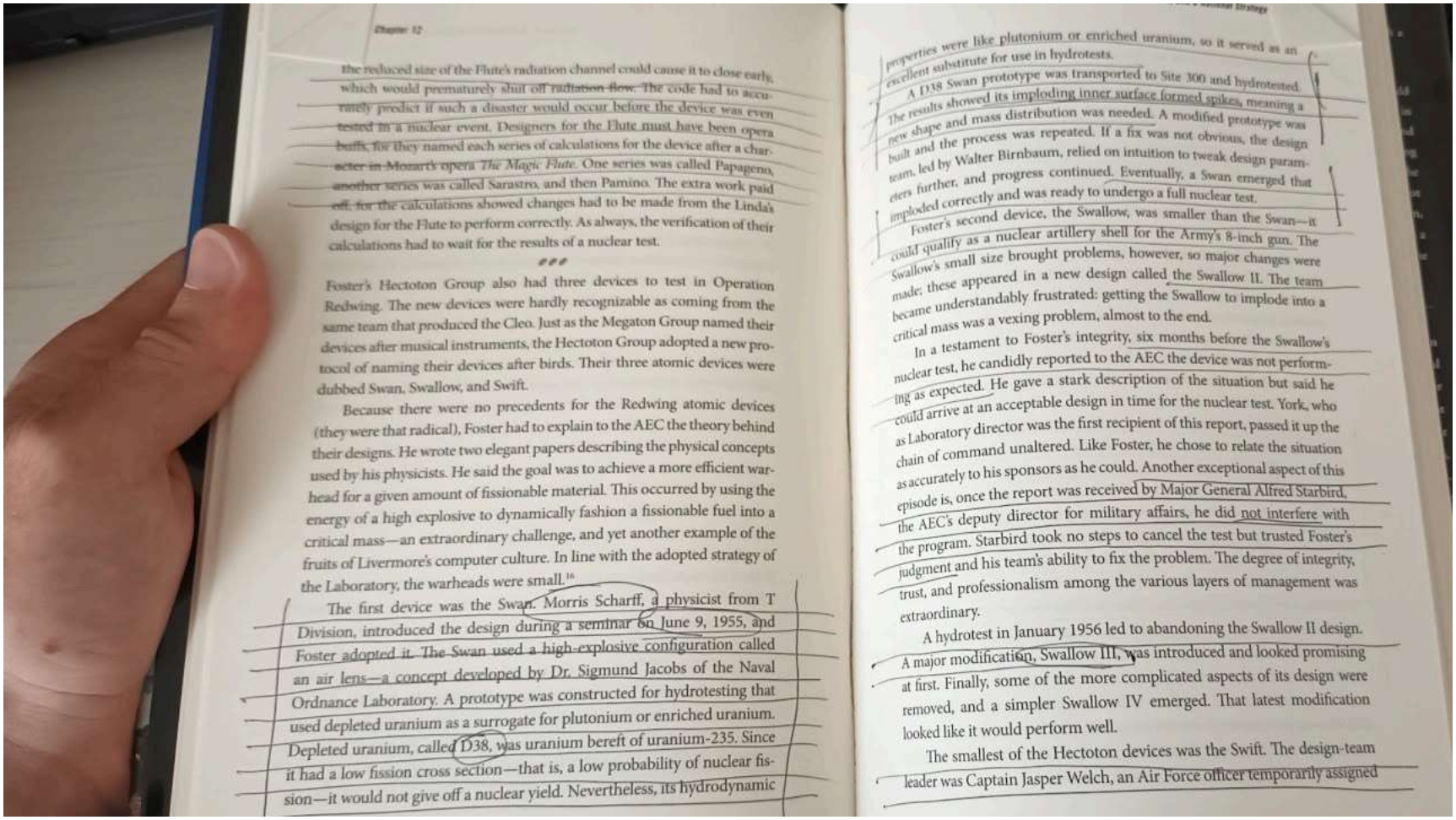


The Cleo being escorted to the Nevada Test Site during Operation Teapot in 1955 by a Livermore Laboratory summer intern as he eats a sandwich. *Lawrence Livermore National Laboratory photo*

The Cleo, packed into two suitcases, is delivered to the Nevada Test Site. *Left to right:* Summer intern Tommy, Walt Arnold, and Navy commander Art Werner. *Lawrence Livermore National Laboratory photo*

Soldiers and Marines observing an atomic test at the Nevada Test Site in 1957 as part of Project Desert Rock. *Lawrence Livermore National Laboratory photo*

Rows of Polaroid cameras attached to oscilloscopes in a diagnostic trailer at the Nevada Test Site during Operation Teapot in 1955. *Lawrence Livermore National Laboratory photo*



the reduced size of the Flute's radiation channel could cause it to close early, which would prematurely shut off radiation flow. The code had to accurately predict if such a disaster would occur before the device was even tested in a nuclear event. Designers for the Flute must have been opera buffs, for they named each series of calculations for the device after a character in Mozart's opera *The Magic Flute*. One series was called Papageno, another series was called Sarastro, and then Pamino. The extra work paid off, for the calculations showed changes had to be made from the Linda's design for the Flute to perform correctly. As always, the verification of their calculations had to wait for the results of a nuclear test.

###

Foster's Hectoton Group also had three devices to test in Operation Redwing. The new devices were hardly recognizable as coming from the same team that produced the Cleo. Just as the Megaton Group named their devices after musical instruments, the Hectoton Group adopted a new protocol of naming their devices after birds. Their three atomic devices were dubbed Swan, Swallow, and Swift.

Because there were no precedents for the Redwing atomic devices (they were that radical), Foster had to explain to the AEC the theory behind their designs. He wrote two elegant papers describing the physical concepts used by his physicists. He said the goal was to achieve a more efficient warhead for a given amount of fissionable material. This occurred by using the energy of a high explosive to dynamically fashion a fissionable fuel into a critical mass—an extraordinary challenge, and yet another example of the fruits of Livermore's computer culture. In line with the adopted strategy of the Laboratory, the warheads were small.[16]

The first device was the Swan. Morris Scharff, a physicist from T Division, introduced the design during a seminar on June 9, 1955, and Foster adopted it. The Swan used a high-explosive configuration called an air lens—a concept developed by Dr. Sigmund Jacobs of the Naval Ordnance Laboratory. A prototype was constructed for hydrotesting that used depleted uranium as a surrogate for plutonium or enriched uranium. Depleted uranium, called D38, was uranium bereft of uranium-235. Since it had a low fission cross section—that is, a low probability of nuclear fission—it would not give off a nuclear yield. Nevertheless, its hydrodynamic properties were like plutonium or enriched uranium, so it served as an excellent substitute for use in hydrotests.

A D38 Swan prototype was transported to Site 300 and hydrotested. The results showed its imploding inner surface formed spikes, meaning a new shape and mass distribution was needed. A modified prototype was built and the process was repeated. If a fix was not obvious, the design team, led by Walter Birnbaum, relied on intuition to tweak design parameters further, and progress continued. Eventually, a Swan emerged that imploded correctly and was ready to undergo a full nuclear test.

Foster's second device, the Swallow, was smaller than the Swan—it could qualify as a nuclear artillery shell for the Army's 8-inch gun. The Swallow's small size brought problems, however, so major changes were made; these appeared in a new design called the Swallow II. The team became understandably frustrated: getting the Swallow to implode into a critical mass was a vexing problem, almost to the end.

In a testament to Foster's integrity, six months before the Swallow's nuclear test, he candidly reported to the AEC the device was not performing as expected. He gave a stark description of the situation but said he could arrive at an acceptable design in time for the nuclear test. York, who as Laboratory director was the first recipient of this report, passed it up the chain of command unaltered. Like Foster, he chose to relate the situation as accurately to his sponsors as he could. Another exceptional aspect of this episode is, once the report was received by Major General Alfred Starbird, the AEC's deputy director for military affairs, he did not interfere with the program. Starbird took no steps to cancel the test but trusted Foster's judgment and his team's ability to fix the problem. The degree of integrity, trust, and professionalism among the various layers of management was extraordinary.

A hydrotest in January 1956 led to abandoning the Swallow II design. A major modification, Swallow III, was introduced and looked promising at first. Finally, some of the more complicated aspects of its design were removed, and a simpler Swallow IV emerged. That latest modification looked like it would perform well.

The smallest of the Hectoton devices was the Swift. The design-team leader was Captain Jasper Welch, an Air Force officer temporarily assigned

British Army 1959 nuclear weapons effects protection film ...



Double bl
nuclear w

SOURCE:
https://wv
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Khamovni
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Bunker-42, underground Red Carpet secret military facility, Moscow.

This Soviet bunker was built 65 meters beneath Moscow in 1951 and finished in 1956. In the case of a nuclear attack around 600 people could take shelter for 30 days, thanks to the bunker's stockpile of food, medicine and fuel. Workers were able to comm using a secret midnight train that ran from Taganskaya metro station.

NEWS https://www.mirror.co.uk/news/world-news/wealthy-russians-scramble-build-nuclear-28271460









Bunker 703 in central Moscow. Location: 2-y Novokuznetskiy Ln., 14/1, Moscow 115184 Russia

42 metres deep, built 1961 with 10 ton nuclear test proved blast doors.

Bunker-703 – Moscow, Russia









Photos by Moscow construction worker Mikhail Bratza: Moscow's Site 1 nuclear bunker has two-foot-thick steel reinforced doors, 75 toilets and bathroom capacity for 200 people to wash at once. Russian bunker 650-feet underground holds 2,700 Moscow people in a nuclear attack.

RIGHT: transparent inner panel on a blast door, showing internal mechanism

SOURCE: https://www.thesun.co.uk/news/20144544/doomsday-bunker-frenzy-russians-shelters-nuclear-war/



Double blast doors protecting Moscow nuclear war shelter. Moscow has 250 hardened communal shelters, plus another 2,250 quickly utilizable underground car parks, shopping and metro stations. Russia has 16,270 bomb shelters remaining from the USSR era.
https://english.pravda.ru/news/society/150163-moscow_bomb_shelters/











Kremlin ordered to prepare bomb shelters throughout Russia - https://newsonlineread.com/and-they-started-with-kyiv-in-3-days-the-kremlin-ordered-to-prepare-bomb-shelters-throughout-russia/

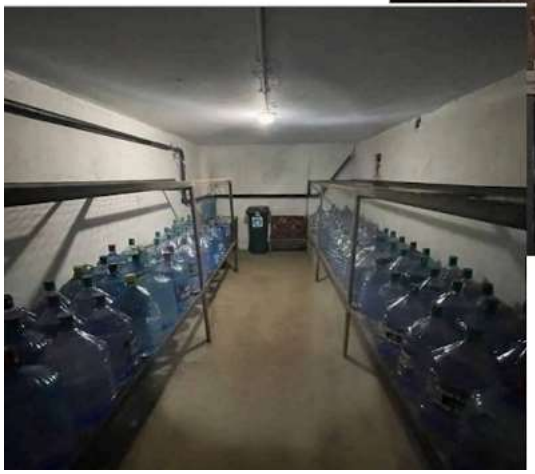


SOURCE: Bomb sh Moscow - defenceshttps://w news/world-news/ readied-moscow-r





Entrance to Russian thermonuclear bomb shelter in Moscow disguised as entrance to unc
Source TASS: 19536579





Moscow bomb shelters

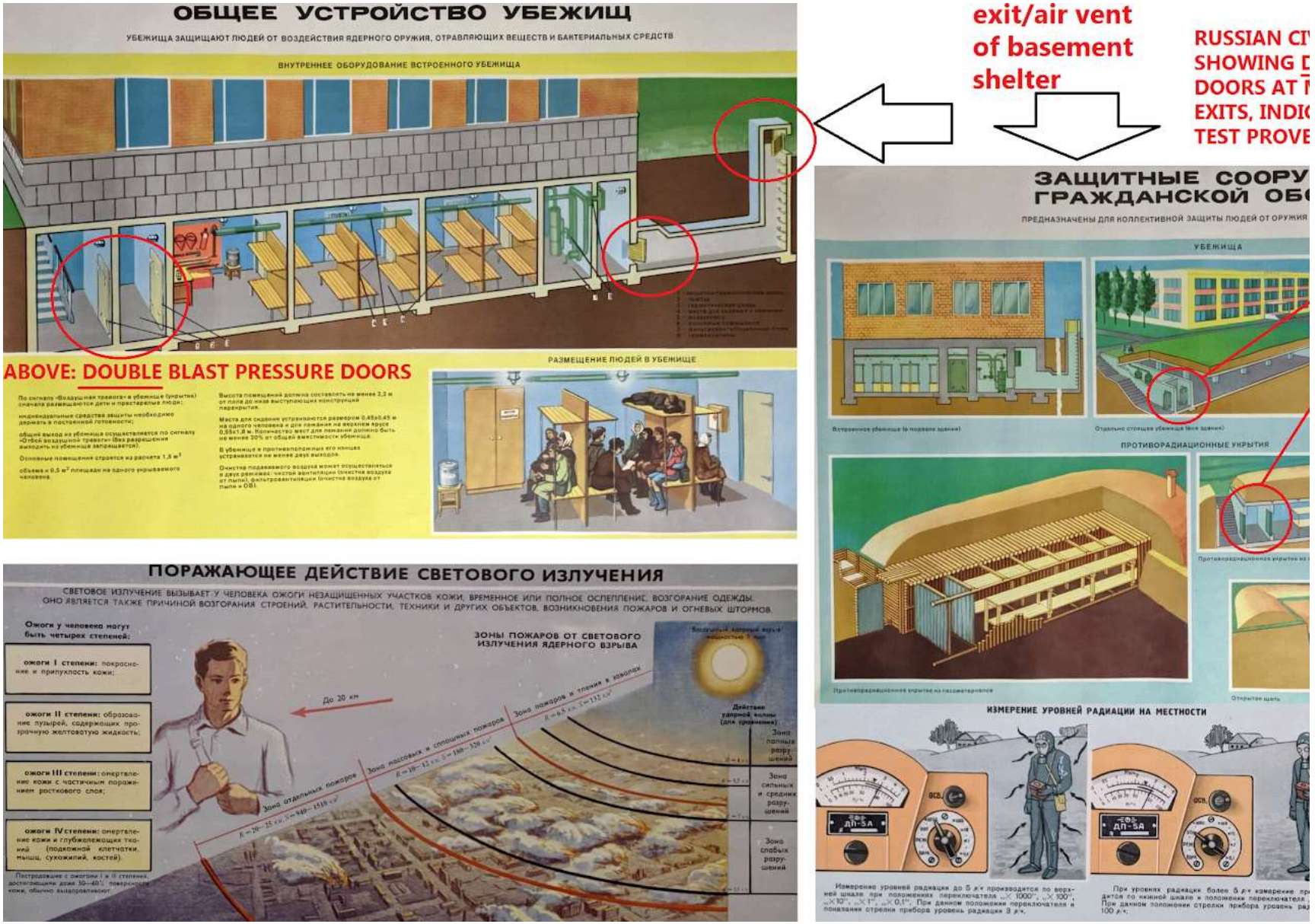
1 529 subscribers

We tell you how to find bomb shelters in Mosc

Contact @bombshelterswatch

How to find them in your area





ABOVE: CIA-declassified testimony from 1985 (linked **here**) states that Russia built 800-1,500 relocation shelters for government officials, in addition to public basement shelters and subway shelters and evacuation/dispersal plans for a crisis (in WWII, the Russian government relocated from Moscow to Kuybishev, where there is now a deep shelter under dry soft rock). The U.S. Department of Defense's April 1988 edition of Soviet Military Power: An Assessment of the Threat at pages 59-61 adds that **Russia built secret subway**

lines,

Declassified and Approved For Release 2012/12/10 : CIA-RDP95M00249R000801130021-6

SOVIET STRATEGIC FORCE DEVELOPMENTS

TESTIMONY BEFORE A JOINT SESSION OF THE SUBCOMMITTEE
ON STRATEGIC AND THEATER NUCLEAR FORCES OF THE
SENATE ARMED SERVICES COMMITTEE

AND

THE DEFENSE SUBCOMMITTEE OF THE SENATE COMMITTEE ON APPROPRIATIONS

JUNE 26, 1985

BY

www.cia.gov/readingroom/docs/CIA-RDP95M00249R000801130021-6.pdf

ROBERT M. GATES
CHAIRMAN, NATIONAL INTELLIGENCE COUNCIL, AND
DEPUTY DIRECTOR FOR INTELLIGENCE
CENTRAL INTELLIGENCE AGENCY

LAWRENCE K. GERSHWIN
NATIONAL INTELLIGENCE OFFICER FOR STRATEGIC PROGRAMS
NATIONAL INTELLIGENCE COUNCIL

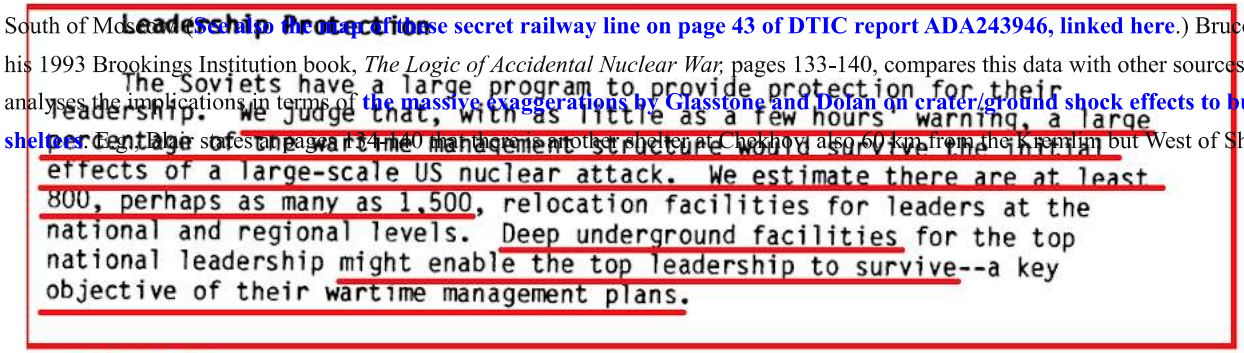
PAGE 2:

Soviet leaders are attempting to prepare their military forces for the possibility that they will actually have to fight a nuclear war. They have seriously addressed many of the problems of conducting military operations in a nuclear war, thereby improving their ability to deal with the many contingencies of such a conflict.

We judge that the Soviets would plan to conduct a military campaign that would seek to end a nuclear war on their terms--by neutralizing the ability of US intercontinental and theater nuclear forces to interfere with Soviet capabilities to prevail in a conflict in Eurasia.

PAGE 6:

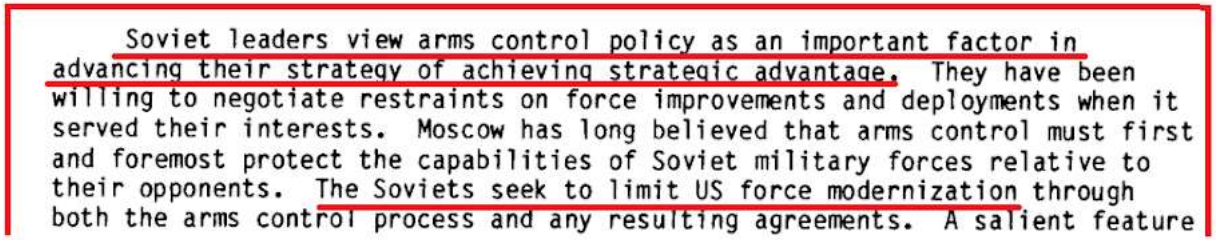
nicknamed "Metro-2", extending from the Kremlin in Moscow out to relocation shelters 60 km away such as that at Sharapovo, 60 km South of Moscow (**Schalo the objection to these secret railway line on page 43 of DTIC report ADA243946, linked here**.) Bruce Blair in his 1993 Brookings Institution book, *The Logic of Accidental Nuclear War,* pages 133-140, compares this data with other sources, and analyses the implications in terms of **the massive exaggerations by Glasstone and Dolan on crater/ground shock effects to buried shelters**. E.g., Blair states on page 134-140 that there is another shelter at Chekhov, also 60 km from the Kremlin but West of Sharapovo:



Leadership Protection

The Soviets have a large program to provide protection for their leadership. We judge that, with as little as a few hours' warning, a large part of the war-time management structure would survive the initial effects of a large-scale US nuclear attack. We estimate there are at least 800, perhaps as many as 1,500, relocation facilities for leaders at the national and regional levels. Deep underground facilities for the top national leadership might enable the top leadership to survive--a key objective of their wartime management plans.

PAGE 10:

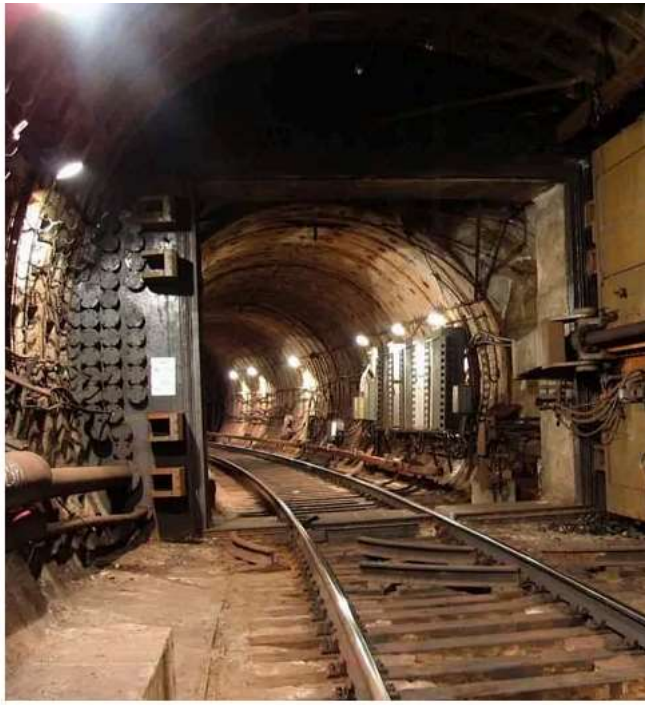


Soviet leaders view arms control policy as an important factor in advancing their strategy of achieving strategic advantage. They have been willing to negotiate restraints on force improvements and deployments when it served their interests. Moscow has long believed that arms control must first and foremost protect the capabilities of Soviet military forces relative to their opponents. The Soviets seek to limit US force modernization through both the arms control process and any resulting agreements. A salient feature

ABOVE: *Blast door at Komsomolskaya ("Комсомо́льская") Metro Station on the Koltsevaya line, Krasnoselsky District, Central Administrative Okrug, Moscow (average depth of Moscow metro is 45 metres;* ***this station is at 37 metres depth and so provides excellent nuclear effects resistance at very high peak overpressures and radiation fields****). Notice the curved track on the floor on the the blast door on the right would be swung shut by a hydraulic ram (located behind it!). The blast doors and their hydraulic mechanisms are similar to the silo blast doors that protect large ICBMs from several thousand psi peak overpressure at ground zero, although the shelters have several blast doors, and giving greater protection. It is a nicely camouflaged Russian civil defense system! (Photo source: https://www.oneman-onemap.com/en/2017/08/08/the-moscow-metro/)* Bruce Blair, *Logic of Accidental Nuclear War* (pages 134-140):

"These exurban deep underground command posts were connected to the deep underground post at the Kremlin by a special subway line. Two other special subway lines branched out from the Kremlin. One wound through the Ramenki area deep underground command post southwest of Moscow State University, and on to exurban deep posts farther to the South West of the city. The other ran 25 km East to a deep underground complex housing the national air defense HQ. ... the most heavily fortified allegedly could withstand blast overpressures as high as several thousand pounds per square inch. ... a very deep command centre beneath the Kremlin ... in the early 1980s earned a Lenin Prize for former general secretary Chernenko. The largest underground complex ... was situated at Ramenki at an estimated depth of 650-1,000 feet. It could accommodate 10,000 people. ... Recently the U.S. Department of Defense **reviewed the pertinent historical evidence gathered during nuclear tests and developed new models** of the vulnerability of underground structures to nuclear explosions. These calculations differed substantially from those derived from earlier models. ... the dimensions of a crater produced by a nuclear explosion were estimated to be considerably smaller than previously thought. ... the radius of a crater produced by a 1 Mt nuclear explosion on the surface of wet soil [*crater radii will be only 58.3% this size in Moscow's wet soft rock, which is tougher to*

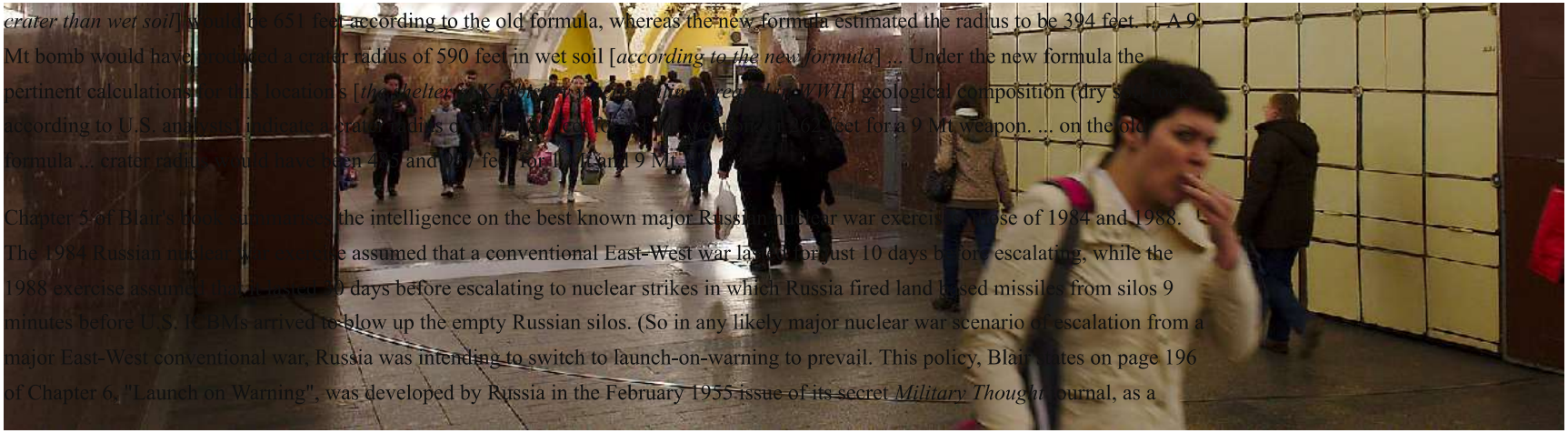




MOSCOW'S NUCLEAR BLAST DOORS

MOSCOW'S NUCLEAR BLAST DOO



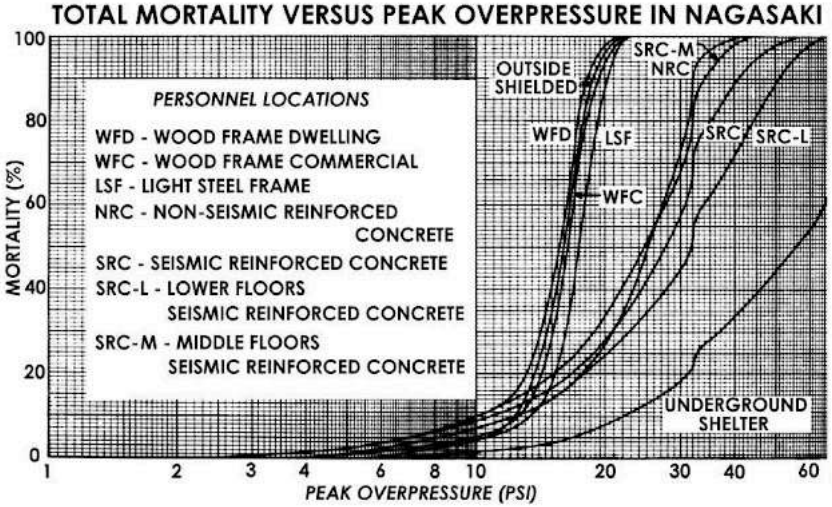


crater than wet soil] would be 651 feet according to the old formula, whereas the new formula estimated the radius to be 394 feet. ... A 9-Mt bomb would have produced a crater radius of 590 feet in wet soil [*according to the new formula*] ... Under the new formula the pertinent calculations for this location is [*the shelter*] ... [*WWII*] geological composition (dry s... according to U.S. and ... Staff, radius ... feet ... 651 feet for a 9 Mt weapon. ... on the old formula ... crater radius ... would have been 4[illegible] and [illegible] feet for [illegible] and 9 Mt.

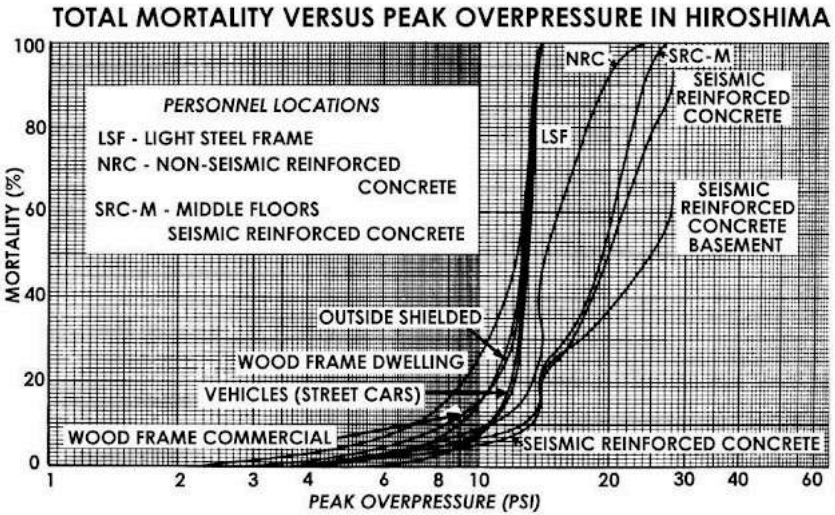
Chapter 5 of Blair's book summarises the intelligence on the best known major Russian nuclear war exercises those of 1984 and 1988. The 1984 Russian nuclear war exercise assumed that a conventional East-West war lasted for just 10 days before escalating, while the 1988 exercise assumed the conventional ... days before escalating to nuclear strikes in which Russia fired land based missiles from silos 9 minutes before U.S. ICBMs arrived to blow up the empty Russian silos. (So in any likely major nuclear war scenario of escalation from a major East-West conventional war, Russia was intending to switch to launch-on-warning to prevail. This policy, Blair states on page 196 of Chapter 6, "Launch on Warning", was developed by Russia in the February 1955 issue of its secret *Military Thought* journal, as a countermeasure to prevent the success of a surprise strike during a crisis.) Blair also on page 26 quotes Henry Kissenger's advice that in a crisis you should escalate "rapidly and brutally to the point where the opponent can no longer afford to experiment" (quotation source is Kissinger's *White House Years,* 1979, p622). Blair comments (based on the experiences of the failure of gradual escalations prior to WWI and WWII by appeasers and misinformed idealists): "Henry Kissinger argued that what seems balanced and safe in a crisis is often the most risky because because a too temperate, deliberate, and predictable course allows the adversary to match every move, thereby prolonging the conditions of inherent risk. His prescription was to exploit the adversary's reluctance to play nuclear roulette ... the crisis may be brought to a quick and favourable resolution. Kissinger practised this philosophy of crisis management during the 1973 Middle East crisis by declaring a global U.S. nuclear alert in the hope that it would deter the Soviets from intervening unilaterally to save the trapped Egyptian army ... a ploy to convince the Soviets of our willingness, if necessary, to run a risk of nuclear war in order to prevail."

This is relevant to the UK Government policy in August 1914 and from 1933-39, when its "speak softly and carry a big stick" diplomatic policy (a phrase mentioned by President Ted Roosevelt as being a useful West African proverb) failed to deter world wars. Speaking softly undermined the credibility of the big stick for deterrence: the opponent has to believe it to be a credible threat, which means you must convince your opponent of your desire to use the stick to enforce your will. In the end, Britain in both cases declared war first, after convincing its opponent that it was committed to peaceful coexistence. Being nice to a monster may turn the monster "nice" in the fairy tales of "arms controllers and disarmers", but in the real world it encourages and rewards aggression. Anyone pointing out this fact of human nature was secretly attacked by underhand methods by Chamberlain's thugs, e.g. pressure on the publisher of Popular Flying resulted in editor Johns being fired in 1939 for writing editorials critical of appeasement and efforts were made to de-select Winston Churchill, MP. The pro-Chamberlain lying propaganda continues, driven by disarmament liars, who believe in lying about anything, particularly civil defense and weapons effects, to get peace at the price of despotic genocide and slavery, the Pyrrhic "victory" of fools.

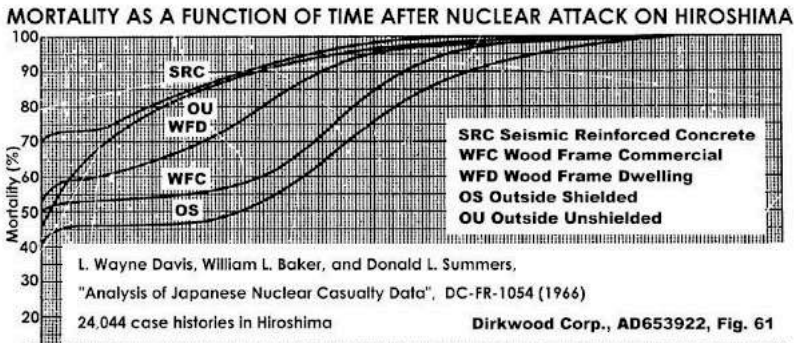
Hiroshima



Left: the Dirkwood Corporation analysis of the mortality rates as a function of peak overpressure in Nagasaki and Hiroshima is based on 24,044 traced case histories in Hiroshima and 11,055 in Nagasaki (a total of 35,099 cases). The report by L. Wayne Davis, William L. Baker, and Donald L. Summers, *Analysis of Japanese Casualty Data*, DC-FR-1054, AD653922 (1966), summarises the effects versus distance.



A classified report by L. Wayne Davis, et al., *Prediction of Urban Casualties and the Medical Load from a High-Yield Nuclear Burst*, Dirkwood Corporation paper DC-P-1060 (1968), compares the peak overpressures for the casualties in each city to those from the main Texas City Disaster surface burst explosion of 1947, when 0.67 kt of explosive in a ship detonated after a fire. (This is corrected for the effective explosion energy, which was less than the total mass of explosive involved because some was on a nearby dock and did not explode simultaneously, and some burned without detonating.) Comparison of mortality versus peak overpressure curves for different events shows the influence of nuclear

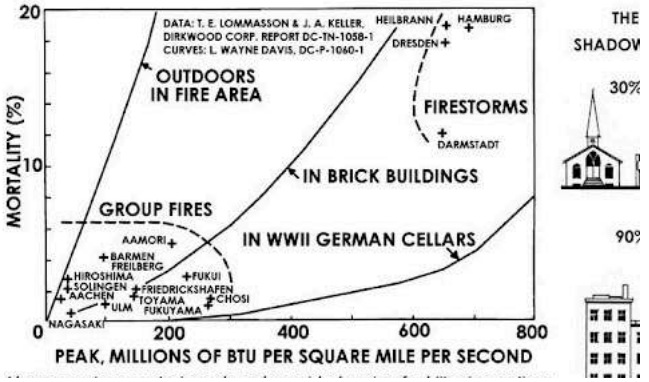


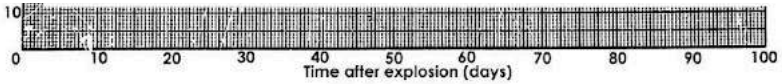


BANK OF JAPAN, HIROSHIMA (BUILDING 24)



GEIBI BANK COMPANY, HIROSHIMA (BUILDING 18





radiation and the firestorm at Hiroshima on total casualty rates.

Above: nuclear explosions *do not provide burning fuel* like incendiary air-raids on wooden cities, and hijacked aircraft hitting the Twin Towers on 11 September 2001 (where *burning aviation fuel* melted the steel frame). At Hiroshima, *shadowing protected most window contents.*

SOURC

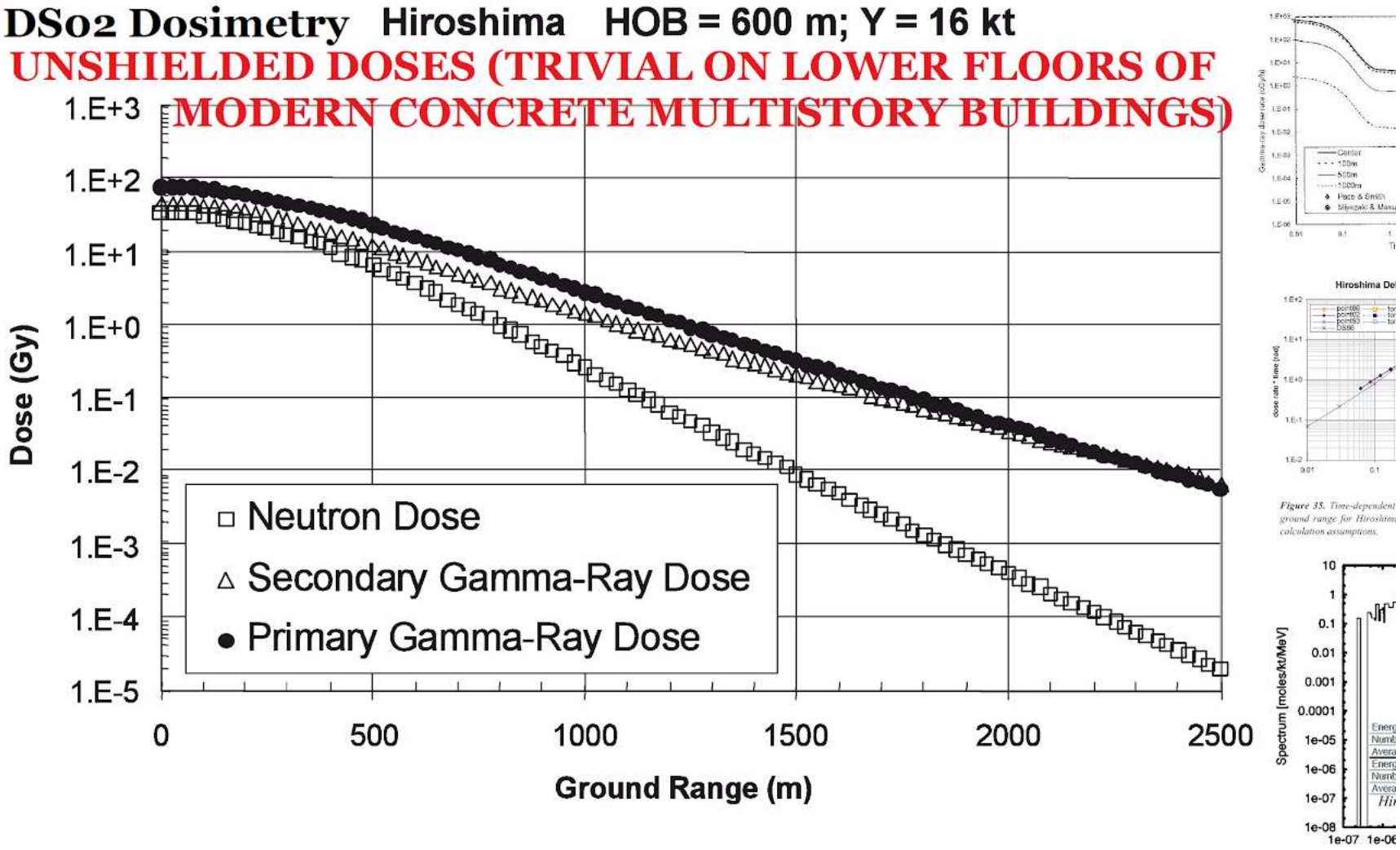
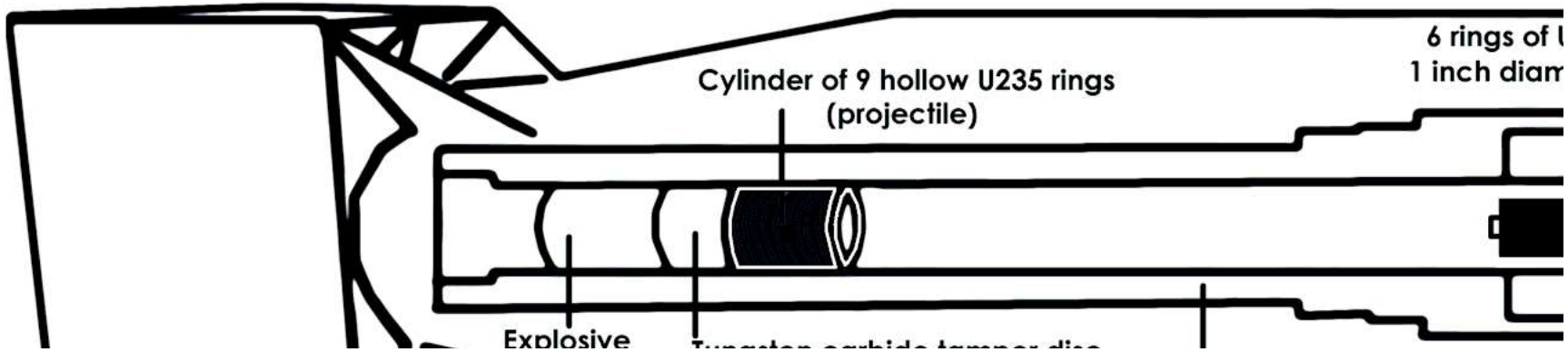


Figure 35. Time-dependent
ground range for Hiroshim
calculation assumptions.

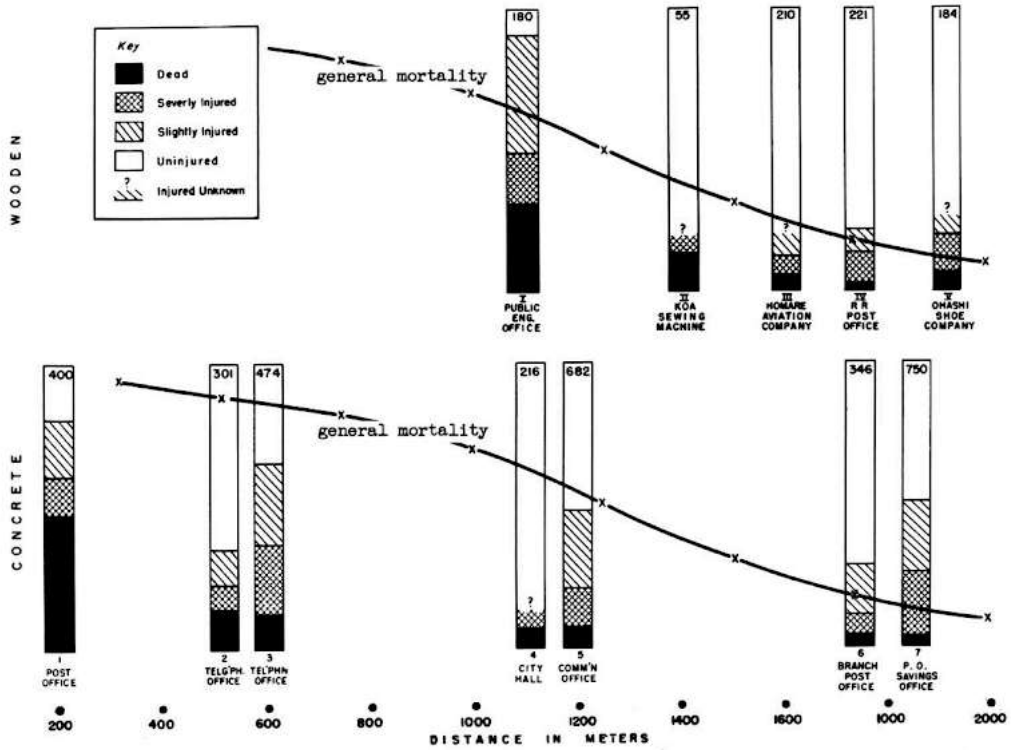



Tungsten carbide tamper disc
(steel backed)
6.5 inch bore gun
(steel)
Tungsten c
(13 inch
Radar
fuse antenna
Little Boy

Hiroshima

HIROSHIMA
MORTALITY AND CASUALTY RATES
WOODEN AND CONCRETE BUILDINGS COMPARED
(AS OF LATE AUG. 1945)

Figure 11



Above: Fig. 12 from Ashley W. Oughterson, et al., *Medical Effects of Atomic Bombs: The Report of the Joint Commission for the Investigation of the Effects of the Atomic Bomb in Japan,* Volume VI, U. S. Army Institute of Pathology, NP-3041, 1951, comparing the overall general mortality for Hiroshima with the mortality inside wooden and concrete buildings. *Hiroshima's obsolete wooden houses had a higher mortality than concrete buildings.*

Table 12 of that report is the basis of most of the data in Table 12.21 on page 547 of the 3rd edition (1977) of Glasstone and Dolan's book, *Effects of Nuclear Weapons,* which averages Hiroshima survival data for concrete buildings and correlates it to "degrees of damage," not distance. *This correlation can be deceptive, because some casualties in concrete buildings were not due to blast effects, but due to nuclear radiation, which predominated on the upper floors, where there was less shielding from the air burst overhead than for the lower floors.* Most fire damage to these buildings by which time most survivors had evacuated, so *the fire damage in concrete buildings did not determine casualty rates* (e.g., 207 out of 400 people *survived* in Hiroshima's Post Office, burned-out just 200 metres from ground zero).

Glasstone and Dolan's Table 12.21 correlates "severe damage" to 88% killed in the two reinforced concrete buildings right next to ground zero in Hiroshima.

To correlate "moderate damage" to 14% mortality (106 killed out of 775 people), Glasstone and Dolan average NP-3041's Table 12 data for Hiroshima's Telegraph Office at 500 metres (301 occupants, 45 killed) and the Central Telephone Office at 600 metres (474 occupants, 61 killed). Glasstone and Dolan's correlation of "light damage" to 8% killed is NP-3041's Table 12 for Hiroshima City Hall at 1.1 km (216 occupants, 18 died up to 10 November 1945) and the Communications Office at 1.2 km (682 occupants, 56 killed). *These data*





Above: Glasstone's *Effects of Nuclear Weapons* points out Japanese buildings were constructed of timbers containing many pre-cut tenons, which weakened their strength. The typical wooden house at the top survived without fire damage 1.0 mile from ground zero, Hiroshima. The lower photo shows the construction method, using timbers with many tenons.



Above: three Japanese beer bottles fused together in the Hiroshima firestorm. *Glass did not melt due to the thermal flash.* The U. S. Strategic Bombing Survey, Medical Division, *The Effects of Atomic Bombs on Health and Medical Services in Hiroshima and Nagasaki,* March 1947, documents life continuing in the cities, on pages 81-83:

"Mitsubishi shipyards in Nagasaki were operating on a very reduced capacity. On 27 October [1945] they launched a 10,000-ton steel cargo ship, laid the keel for another one on 3 November, and had 5 other ships under way. ... Other shipyards were beginning or continuing operations and 6 steel ships were under way. Buildings were not available for other operations and labor was scarce. ... There was a critical shortage of skilled as well as unskilled labor, to a lesser extent owing to the removal of Koreans, Chinese, and prisoners of war. ... In Hiroshima ... Only 26 per-

Hiroshima

THE NUMBER OF ATOMIC BOMBS EQ
GREAT BRI

Summary

During the last war, a total o
on Germany by the Strategic Air For
accuracy, then to achieve the same
houses, industrial and transportati
the use of over 300 atomic bombs to
explosive and incendiary bombs for
an atomic bomb. Increases in accu

Above: the Top Secret 1950 British Hom
Number of Atomic Bombs Equivalent to
Germany, was written by the World Wa
experts including Frank H. Pavry, who w
British Mission to Japan. The 1950 point
effects in the popular media and calcula
al weapons dropped on Germany were e
yield or $300(20/1000)^{2/3}$ = 22 nuclear we
distribution of targets. The non-linear s
yield causes the popular media to falsely
megaton nuclear weapon would duplica



Above: British Mission to Japan repor
shelter with crude wooden frame," wi
was a large number of such shelters

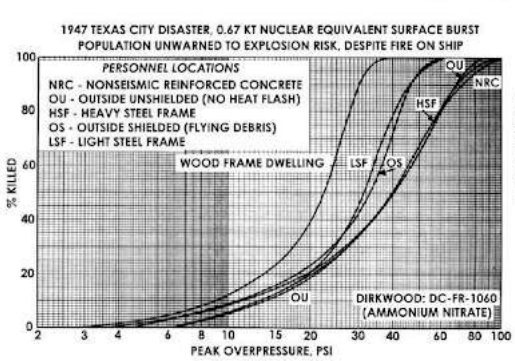


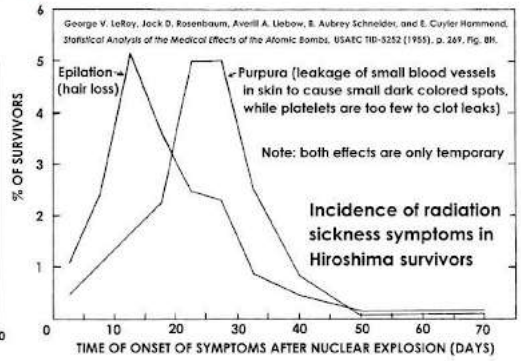
occurred 2-3 hours later at the height of the firestorm, *only apply to an unwarned population inside concrete buildings.*

city was destroyed ..."

ered timber framed shelter," survivec

Hiroshima





Above: casualty risks in the unwarned population from blast effects in typical kinds of American city building were firmly established after the 16 April 1947 Texas City Disaster. Because the thermal effects were trivial, people in the open were safer than those behind objects, due to the flying debris. Acute radiation syndrome affected fewer than 5% of the survivors of Hiroshima.

CONFIDENTIAL

DEPARTMENT OF THE ARMY TECHNICAL MANUAL — TM 23-200
DEPARTMENT OF THE NAVY — OPNAV INSTRUCTION 03400.1B
DEPARTMENT OF THE AIR FORCE — AFL 136-1
MARINE CORPS PUBLICATIONS — NAVMC 1104 REV

CAPABILITIES OF ATOMIC WEAPONS (U)

Prepared by
Armed Forces Special Weapons Project

DEPARTMENTS OF THE ARMY, THE NAVY AND THE AIR FORCE

REVISED EDITION NOVEMBER 1957

CONFIDENTIAL

FIGURE 5-2

~~CONFIDENTIAL~~

Thermal effects:	1 KT	100 KT (cal/cm²)	10 MT
Second degree bare skin burn	4	5. 1	9. 1

~~CONFIDENTIAL~~

Table 6-2. Critical Radiant Exposures for Burns Under Clothing

(Expressed in cal/cm² incident on outer surface of cloth)

Clothing	Burn	1 KT	100 KT	10 MT
Summer Uniform	1°	8	11	14
(2 layers)	2°	20	25	35
Winter Uniform	1°	60	80	100
(4 layers)	2°	70	90	120

Note. These values are sensitively dependent upon many variables which are not easily defined (see text), and are probably correct within a factor of two.

~~CONFIDENTIAL~~

Table 6-5. Dose Transmission Factors (Interior Dose/Exterior Dose)

Geometry	Gamma rays		Neutrons
	Initial	Residual	
Foxholes [b]	0.05–0.10	0.02–0.10	0.3

[b] No line-of-sight radiation received.

CONFIDENTIAL

"A few secondary burns resulted from primary flaming of clothing but many people reported such instances in which they were able to beat the fires out without sustaining burns of the underlying skin." - U. S. Strategic Bombing Survey, Medical Division, *The Effects of Atomic Bombs on Health and Medical Services in Hiroshima and Nagasaki*, March 1947, page 25.

Right: flash burns *only occurred in an unobstructed radial line from the fireball,* giving window area burns to chairs at 1 mile in Hiroshima, and fence "shadows" on scorched poles at 1.17





Hiroshima

Right: very limited burn areas, under the dark patterns of a tight, single-layer Kimono dress, Hiroshima. Figs. 28 and 29 in Dirkwood Corp. report DC-FR-1054 show that the average unshielded lightly clothed person outdoors in Nagasaki had 2nd to 3rd degree (blistering to charring) burns to 20% of the body area at 1.86 km, killing 10%. At 1.37 km, the stronger flash heated clothing more, and 2nd to 3rd degree flash burns occurred to an average of 38% of body area for personnel unshielded outdoors, killing 50%. The U. S. Strategic Bombing Survey's Medical Division report, *The Effects of Atomic Bombs on Health and Medical Services in Hiroshima and Nagasaki* (March 1947) explains these facts about burns victims:



Pages 24-27: "The fires particularly in Hiroshima apparently built up more slowly than has been encountered in cities that were subjected to heavy incendiary raids. This gave persons more time to escape from the damaged or demolished buildings. ... A few secondary burns resulted from primary flaming of clothing but many people reported such instances in which they were able to beat the fires out without sustaining burns of the underlying skin. ... Generally speaking, the thicker the clothing was the more likely it was to give complete protection against flash burns. ... There were many instances where skin was burned beneath tightly fitted clothing, but was unburned beneath loosely fitted portions."

Page 43: "The Joint Commission studied a group of 580 workmen in Hiroshima who were marching across the Koi Bridge facing the bomb at a distance of 7,500 feet. All were burned with the exception of three at the rear who were protected by the eaves of a building." The British Mission to Japan report, *The Effects of the Atomic Bombs at Hiroshima and Nagasaki*, 1946, discusses that group of workmen on page 13, stating that 9 out of the 580 (1.55%) were killed by the serious flash burns at that distance (2.3 km).



Above: U. S. Strategic Bombing Survey report photos of profile region was cov

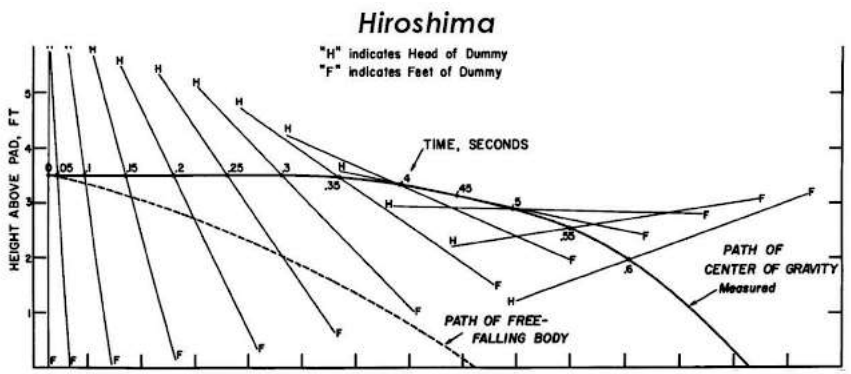
mile from ground zero in Nagasaki.



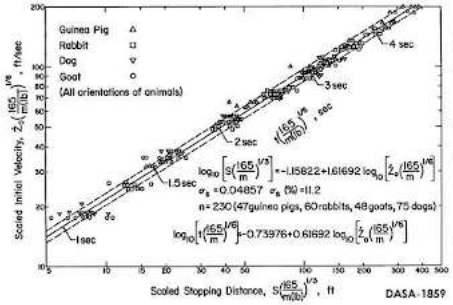


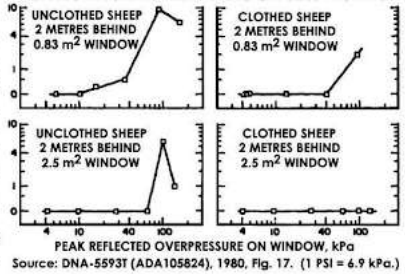
burns to a Hiroshima soldier, illustrating protection afforded against thermal flash burns by a cap and shirt at 1.98 km (1.23 miles) from ground zero. The unburned area below the neck

en out and rol
gasoline-soake
civil defence "



Above: in blast displacements the head impacts the ground *vertically*, it does not hit an obstruction at the peak horizontal velocity. The significance of this fact is that the overall effect is like a fall, albeit taking much longer than gravitation takes because of the hydrodynamic aerofoil lift (where the back is sloping into the blast wind for the first 0.5 second, like an aerofoil). The extra half second of aerodynamic lift gives sufficientreaction time for people to us their arms to protect their heads from the vertical impact. This explains the high survival rate in the Mach stem region at Hiroshima.





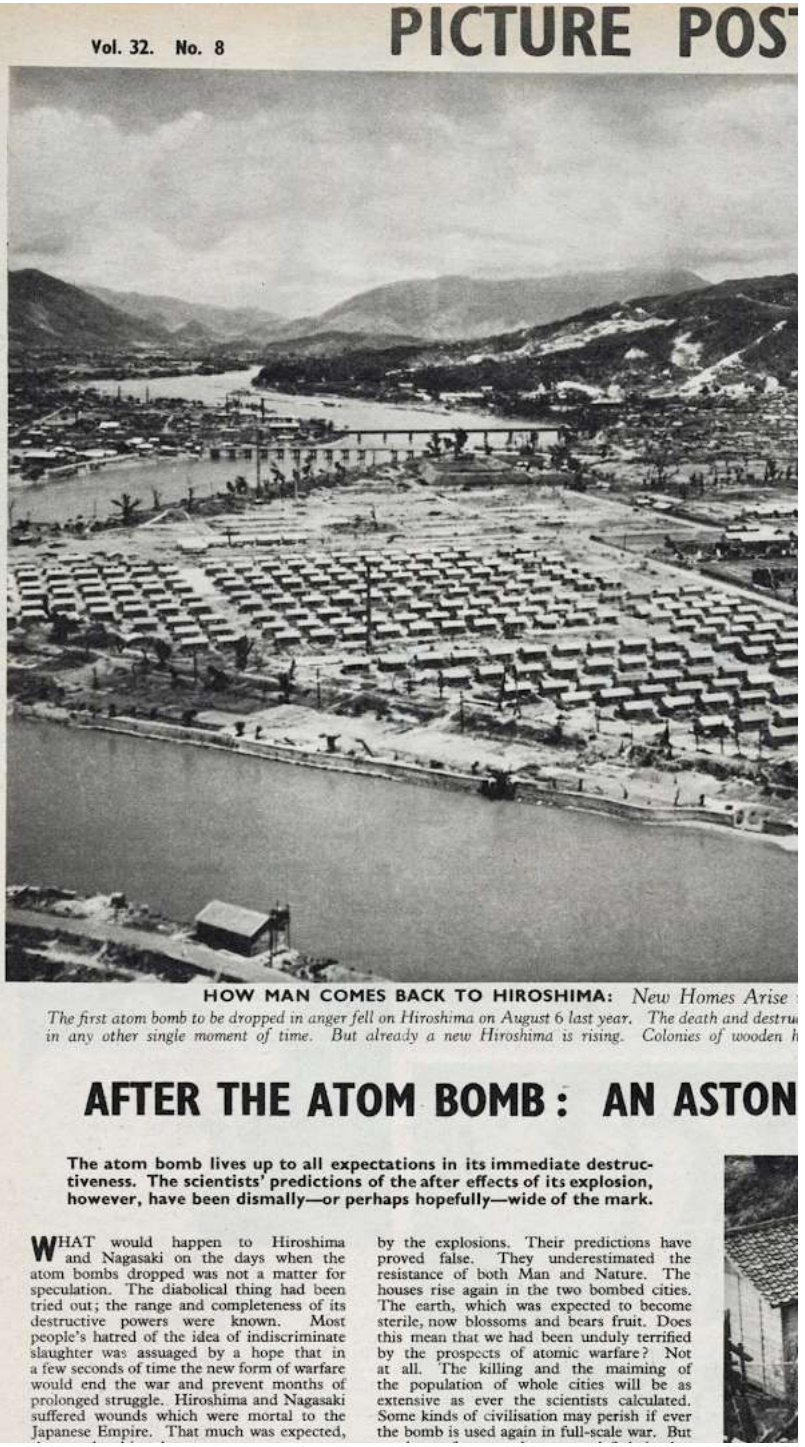
Above: the tumbling distances from blast displacement and the protective quality of clothing in preventing most serious injuries from flying glass fragments are established from experiments on animals. At the 400 kt 12 August 1953 Russian nuclear test, 100% (all 6 animals) exposed outdoors on open ground to 8-10 cal/cm^2 *survived all the effects,* and only 11% (3 of 27) were killed outdoors at 15-26 cal/cm^2 (13 of the 27 had radiation sickness): DTRA-TR-07-38.

Relation Between Overpressure and Missile Parameters

Max pressure psi	Type of missile	Velocity ft/sec geometric mean	Velocity ft/sec range	Mass, gms geometric mean	Mass, gms range	Max missile density No/sq ft
1.9	Window glass	108	50-178	1.45	0.03-10	0.4
3.8	Window glass	168	60-310	0.58	0.01-10	159
5.0	Window glass	170	50-400	0.13	0.002-140	388

Above: Dr Clayton S. White's nuclear test data in his June 1959 testimony to U. S. Congressional hearings on *The Biological and Environmental Effects of Nuclear War*, page 331. Iincreasing the peak overpressure of the blast wave has a small effect on the mean speed of glass fragments, *but causes a larger fall in their mean mass*, because the blast breaks the window up into a very fine "powder" at higher overpressures. *Smaller fragments have less momentum and less penetrating power at very high overpressures, and can be easily stopped by clothing or even the skin surface.* White testified on page 330: "a 10 gram glass fragment, having a velocity of 115 ft/sec has only a 1 percent probability of traversing the abdominal wall ... clothing will degrade the velocity..." Report DASA-1341 calculates a maximum distance for skin lacerations by 50 ft/sec, 10 gram flying glass fragments (acceleration coefficient 0.72 sq. ft/lb) of 7 miles from a 1 MT surface burst. "At 25 degrees from the edge of a window pane, the density of glass fragments is approximately one-tenth the density of fragments measured directly behind the window." - M. K. Drake, et al., *Collateral Damage*, Science Applications, Inc., Defense Nuclear Agency report DNA 4734Z (ADA071371), 1978, page 5-86.





HOW MAN COMES BACK TO HIROSHIMA: *New Homes Arise*

The first atom bomb to be dropped in anger fell on Hiroshima on August 6 last year. The death and destru in any other single moment of time. But already a new Hiroshima is rising. Colonies of wooden h

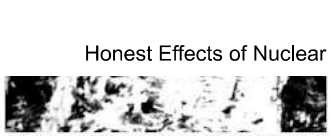
AFTER THE ATOM BOMB: AN ASTON

The atom bomb lives up to all expectations in its immediate destructiveness. The scientists' predictions of the after effects of its explosion, however, have been dismally—or perhaps hopefully—wide of the mark.

WHAT would happen to Hiroshima and Nagasaki on the days when the atom bombs dropped was not a matter for speculation. The diabolical thing had been tried out; the range and completeness of its destructive powers were known. Most people's hatred of the idea of indiscriminate slaughter was assuaged by a hope that in a few seconds of time the new form of warfare would end the war and prevent months of prolonged struggle. Hiroshima and Nagasaki suffered wounds which were mortal to the Japanese Empire. That much was expected, by the explosions. Their predictions have proved false. They underestimated the resistance of both Man and Nature. The houses rise again in the two bombed cities. The earth, which was expected to become sterile, now blossoms and bears fruit. Does this mean that we had been unduly terrified by the prospects of atomic warfare? Not at all. The killing and the maiming of the population of whole cities will be as extensive as ever the scientists calculated. Some kinds of civilisation may perish if ever the bomb is used again in full-scale war. But



Above: Nagasaki's "blast walls," made of pre-cast concrete (left) and earth-filled wooden planks (right). The idea of a blast wall is to shield flying debris and hurricane-strength blast winds. The blast wall base is wider than the top, to prevent overturning for the blast load design specification. These simple blast walls protected machinery at 0.85 mile from ground zero, Nagasaki. The photographs of simple and effective protection were published in Figure 12.37 of the June 1957 edition of *The Effects of Nuclear Weapons*, but were not included in later editions.



Above: a typical multistorey steel-frame building surviving structurally intact at 0.85 mile from ground zero in Nagasaki. The surrounding wooden buildings collapsed and were burned by fires.

that much achieved.

On the long-term effects of the radioactivity released, the scientists had a field day of speculation. With various degrees of certainty they predicted that all life—animal and vegetable—would be impossible for many years on the scorched and acrid desert left

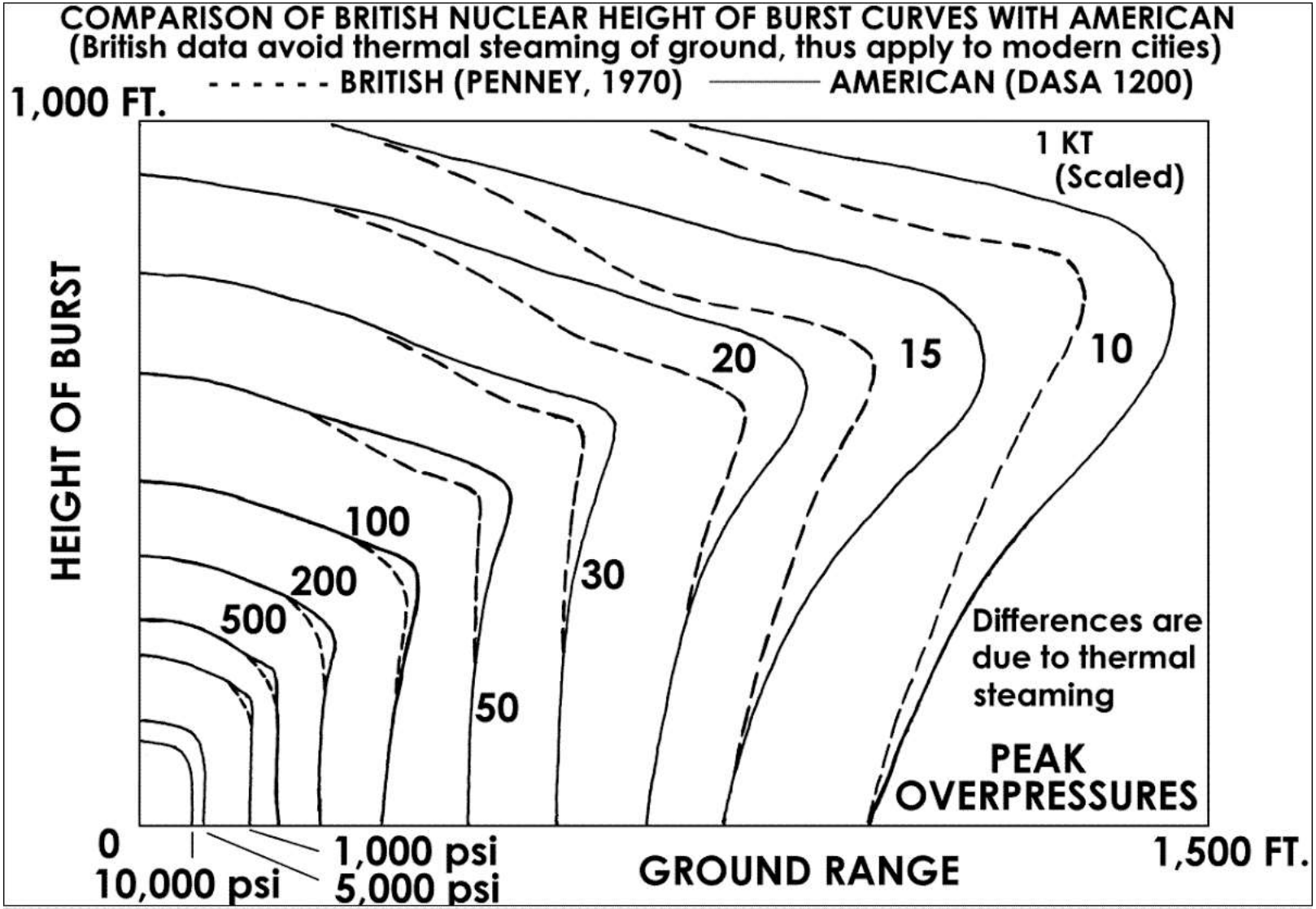
results so far seen show very definitely that the world will survive. Odd men will crawl out of spectacular immunity to build again, as best they know how, and food and flowers will defy all science's efforts at destruction. The atom bomb is not the Last Weapon after all. That may or may not be a source of consolation.

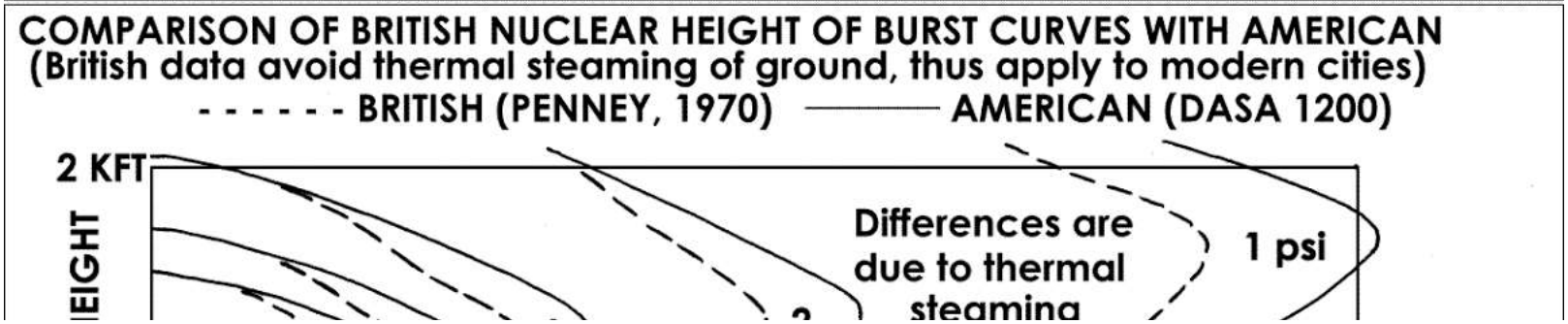


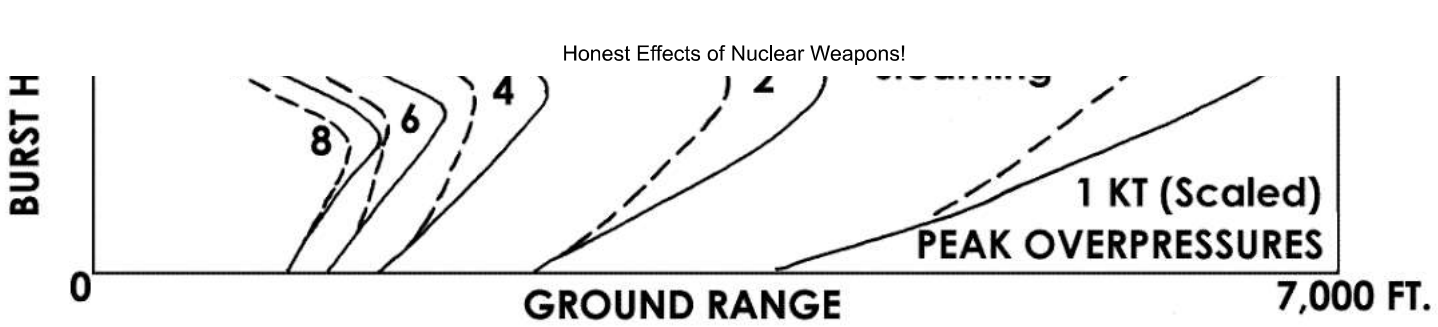
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COMPARISON OF BRITISH NUCLEAR HEIGHT OF BURST CURVES WITH AMERICAN
(British data avoid thermal steaming of ground, thus apply to modern cities)
- - - - - - BRITISH (PENNEY, 1970) —— AMERICAN (DASA 1200)
1,000 FT.
HEIGHT OF BURST
1 KT
(Scaled)
20
15
10
100
200
500
50
30
Differences are due to thermal steaming
PEAK OVERPRESSURES
0
10,000 psi
1,000 psi
5,000 psi
GROUND RANGE
1,500 FT.


COMPARISON OF BRITISH NUCLEAR HEIGHT OF BURST CURVES WITH AMERICAN
(British data avoid thermal steaming of ground, thus apply to modern cities)
- - - - - - BRITISH (PENNEY, 1970) —— AMERICAN (DASA 1200)
2 KFT
Differences are due to thermal steaming
1 psi



Lord Penney (1970) explains that the thermal energy deposited on desert surface before the blast arrives adds energy to the near-surface blast (hot air steams upward rapidly by convection; this is for 1-15 kt low yield air bursts that do NOT popcorn the desert sand, so there is NO precursor dust storm, just heated air). Where ground range >> burst height, in a modern city the first high rise building absorbs the majority of the thermal flash energy, preventing this effect. (Penney proves that modern buildings in Hiroshima and Nagasaki actually ABSORBED blast energy, causing a further attenuation factor, not included above.)

AD-E430503

(12) LEVEL III

AD

AD A093701

MEMORANDUM REPORT ARBRL-MR-03036

SHIELDING FROM BLAST EFFECTS - 1/8TH SCALE MODEL CITY COMPLEX

George A. Coulter

July 1980

DTIC ELECTE S OCT 22 1980 B

US ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
BALLISTIC RESEARCH LABORATORY
ABERDEEN PROVING GROUND, MARYLAND

I. INTRODUCTION

The Defense Nuclear Agency (DNA) sponsored the present work at the Ballistic Research Laboratory (BRL) as a part of its collateral damage program. The general objective of the collateral damage program is to ultimately be able to furnish guidance to the field commander when there is a need to fire a tactical nuclear weapon nearby to a friendly town or city. The field commander should be able to complete his mission within the prescribed acceptable level of damage to the friendly area. The pressure-time loading on structures at specified yield-distances is needed to generate the needed probable damage functions for the field commander.

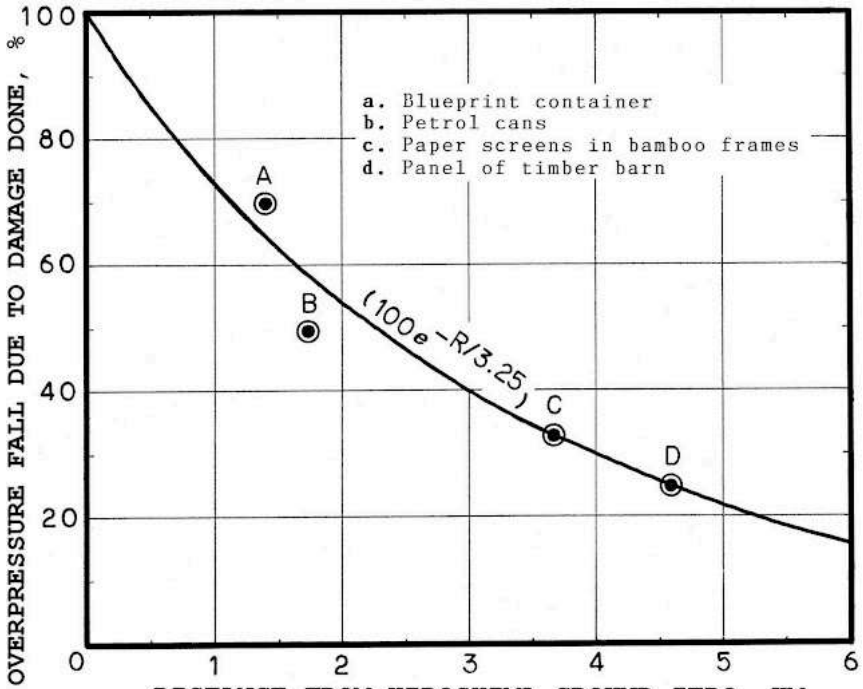
The particular concern addressed by this set of experiments[1] was to determine the amount of shielding, if any, that a row of houses in a town or city complex might afford the next row across the street from it. Accordingly, a 1/8th scale model city complex[2] was designed and exposed to the 1978-79 height-of-burst (HOB) tests at the Defense Research Establishment Suffield, Alberta, Canada (DRES). The model complex was included as one of several experiments carried out during this test series code-named Mighty Mach I and II. The two sets of firings used nominal 490 kg (1000 lb.) pentolite charges to produce the blast waves that were used to load the model complexes. Section II describes the experiments.

It is recommended that existing structural codes utilizing blast loading data, such as this report lists, be modified to account for the observed shielding effects. Town or city structures within such a complex as tested would tend to become less susceptible to possible collateral damage when exposed to blast from a tactical nuclear weapon.

ACKNOWLEDGEMENTS

The author wishes to thank the field staff of The Defence Research Establishment of Suffield, Alberta, Canada for their able support in the accomplishment of this test series. He wishes also to thank Messrs. H. Pearce, B. Pettit (GE-TEMPO), and V. King (BRL-TSD) for their instrumentation-calibration assistance with the test models.

Coulter's 1980 report on city shielding of blast waves (invalidating unobstructed Nevada desert blast data) concluded on page 80 with the recommendation to add a blast shielding correction to existing computer models of blast waves. This went unheeded, as usual!



Data from Dr W. G. Penney, et al., 'The Nuclear Explosive Yields at Hiroshima and Nagasaki', Phil. Trans. Roy. Soc., v266 (1970), pp. 357-424.

being rigid. This means that they do not merely deflect the shock wave, but they also absorb energy from it at each reflection.

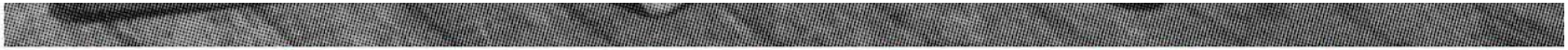
3.21 The removal of energy from the blast in this manner decreases the shock pressure at any given distance from the point of detonation to a value somewhat below that which it would have in the absence of dissipative objects, such as buildings. The presence

[11] This section is based on work by J. von Neumann and F. Reines done at the Los Alamos Scientific Laboratory.

of such dissipation or diffraction makes it necessary to consider somewhat higher values of the pressure than would be required to produce a desired effect if there were only one structure set by itself on a rigid plane.

Open publication: Glasstone, E.A.W. 1950!


300



Dr W. G. Penney of Crossroads Pressure Group Cans and Drums used 5 gallon metal can crushing t

The Effects of Atomic Weapons

PREPARED FOR AND IN COOPERATION WITH THE U. S. DEPARTMENT OF DEFENSE AND THE U. S. ATOMIC ENERGY COMMISSION

Under the direction of the

LOS ALAMOS SCIENTIFIC LABORATORY

Los Alamos, New Mexico

Best of luck
compliments
of
Richard Bambach

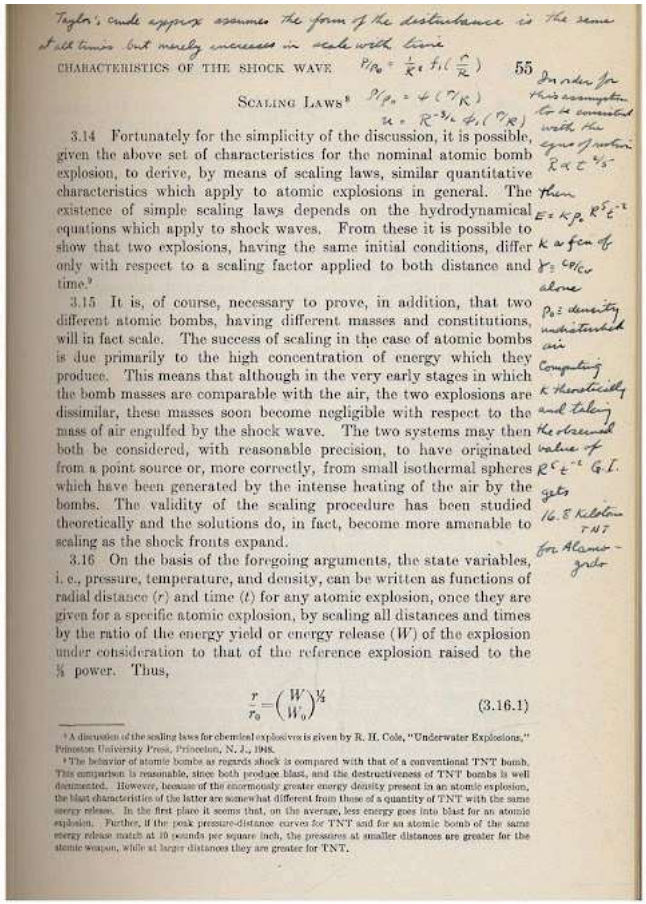
Revised September 1950

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Samuel Glasstone



Taylor's crude approx assumes the form of the disturbance is the same at all times but merely increases in scale with time

CHARACTERISTICS OF THE SHOCK WAVE $P/P_0 = \frac{1}{K} f_1(\frac{r}{R})$ 55

In order for this assumption to be consistent with the eqns of motion $R \propto t^{2/5}$

SCALING LAWS[8] $P/P_0 = f(r/R)$
$u = R^{-3/2} f_2(r/R)$

Then $E = K \rho_0 R^5 t^{-2}$

K a fcn of $\gamma = c_p/c_v$ alone

ρ_0 = density undisturbed air

Computing K theoretically and taking the observed value of $R^5 t^{-2}$ G.I. gets 16.8 Kilotons TNT for Alamogordo

3.14 Fortunately for the simplicity of the discussion, it is possible, given the above set of characteristics for the nominal atomic bomb explosion, to derive, by means of scaling laws, similar quantitative characteristics which apply to atomic explosions in general. The existence of simple scaling laws depends on the hydrodynamical equations which apply to shock waves. From these it is possible to show that two explosions, having the same initial conditions, differ only with respect to a scaling factor applied to both distance and time.[9]

3.15 It is, of course, necessary to prove, in addition, that two different atomic bombs, having different masses and constitutions, will in fact scale. The success of scaling in the case of atomic bombs is due primarily to the high concentration of energy which they produce. This means that although in the very early stages in which the bomb masses are comparable with the air, the two explosions are dissimilar, these masses soon become negligible with respect to the mass of air engulfed by the shock wave. The two systems may then both be considered, with reasonable precision, to have originated from a point source or, more correctly, from small isothermal spheres which have been generated by the intense heating of the air by the bombs. The validity of the scaling procedure has been studied theoretically and the solutions do, in fact, become more amenable to scaling as the shock fronts expand.

3.16 On the basis of the foregoing arguments, the state variables, i. e., pressure, temperature, and density, can be written as functions of radial distance (r) and time (t) for any atomic explosion, once they are given for a specific atomic explosion, by scaling all distances and times by the ratio of the energy yield or energy release (W) of the explosion under consideration to that of the reference explosion raised to the ⅓ power. Thus,

$$\frac{r}{r_0} = \left(\frac{W}{W_0}\right)^{1/3} \qquad (3.16.1)$$

[8] A discussion of the scaling laws for chemical explosives is given by R. H. Cole, "Underwater Explosions," Princeton University Press, Princeton, N. J., 1948.

[9] The behavior of atomic bombs as regards shock is compared with that of a conventional TNT bomb. This comparison is reasonable, since both produce blast, and the destructiveness of TNT bombs is well documented. However, because of the enormously greater energy density present in an atomic explosion, the blast characteristics of the latter are somewhat different from those of a quantity of TNT with the same energy release. In the first place it seems that, on the average, less energy goes into blast for an atomic explosion. Further, if the peak pressure-distance curves for TNT and for an atomic bomb of the same energy release match at 10 pounds per square inch, the pressures at smaller distances are greater for the atomic weapon, while at larger distances they are greater for TNT.

Autographed title page of the September 1950 revised Effects of Atomic Weapons, signed by all the editors (Hirschfelder, Kramish, Smith, Parker and executive editor Glasstone), LEFT. ABOVE: annotations of Arthur Wightman (famous for the Wightman axioms)

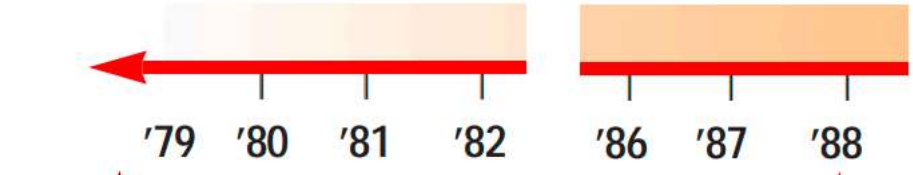


ABOVE: the edition of t revised Effe an unexpec due to a wa when North Korea, lead

REPORT OF THE SELECT COMMITTEE ON U.S. NATIONAL SECURITY
SELECT COMMITTEE OF THE UNITED STATES HOUSE OF REPRESENTATIVES
105TH CONGRESS, 2d Session, REPORT 105-851, May 25, 1999

- **The PRC has obtained classified information on the following U.S. thermonuclear warheads, as well as a number of associated reentry vehicles (the hardened shell that protects the thermonuclear warhead during reentry).**

U.S. WARHEAD	U.S. NUCLEAR MISSILE	CURRENTLY DEPLOYED
W-88	Trident D-5 SLBM	Yes
W-87	Peacekeeper ICBM	Yes
W-78	Minuteman III (Mark 12A) ICBM	Yes
W-76	Trident C-4 SLBM	Yes
W-70	Lance SRBM	No
W-62	Minuteman III ICBM	Yes
W-56	Minuteman II ICBM	No



Late 1970s: PRC steals classified design information on W70 "neutron bomb."

1988: PRC tests neutron bomb.

Mid 1990s: U.S. learns PRC acquired U.S. technical information on insensitive high explosives used in nuclear warheads.

Chemical explosive

The W-88, a miniaturized, tapered warhead, is the weapon the United States has ever built. In the U.S. arsen marine-launched ballistic missile carried aboard the Tri United States learned about the theft of the W-88 Trident well as about the theft of information regarding several oth

The PRC has stolen U.S. design information and c for neutron bomb warheads. The PRC stole class the neutron bomb from a U.S. national weapons laborat theft of this classified information on the neutron bomb

In the late 1970s, the PRC stole design informatio from the Lawrence Livermore Laboratory. The U.S. go theft several months after it took place. The W-70 wa may be used either as a strategic thermonuclear weapon weapon ("neutron bomb"). The PRC tested the neutron

The stolen U.S. nuclear secrets give the PRC de monuclear weapons on a par with our own. Cur targeted on U.S. cities are based on 1950s-era nuclear stolen U.S. technology, the PRC has leaped, in a hand strategic nuclear capabilities to the more modern therm

The "Walk-In"

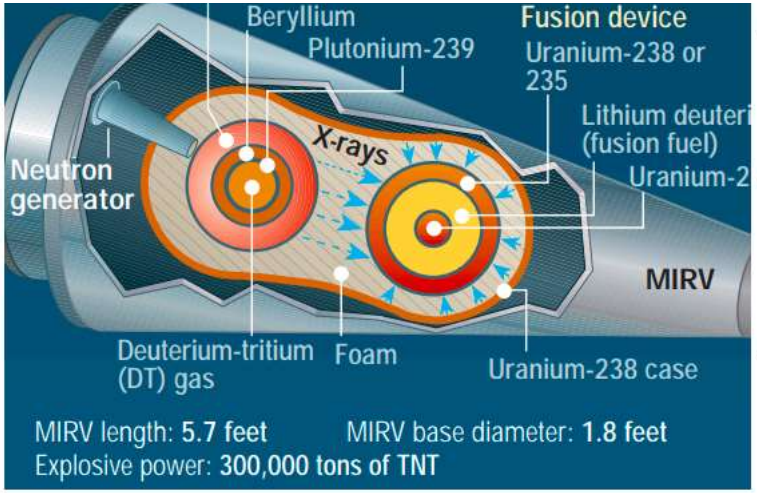
In 1995, a "walk-in" approached the Central Intelli PRC and provided an official PRC document classified " information on the W-88 Trident D-5 warhead, the most as well as technical information concerning other therm

The CIA later determined that the "walk-in" was gence services. Nonetheless, the CIA and other Intellige reviewed the document concluded that it contained U design information.

The "walk-in" document recognized that the U.S. ed the state-of-the-art against which PRC thermonuclea sured.

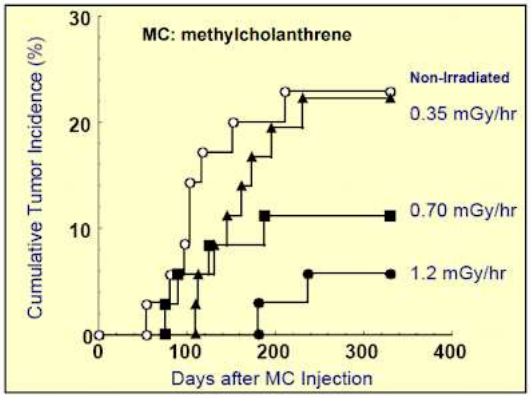
1995: "Walk-in" document confirms the theft of information on the U.S. W-88 sometime between 1984 and 1992, and on the W-62, W-76, W-78, and W-87 sometime prior to 1995.

1997: U.S. learns that in 1985 the PRC stole, through Peter Lee, classified information on miniaturized nuclear tests.



- **The stolen information includes cla U.S. thermonuclear warheads, inclu thermonuclear warhead in the U.S.**
- **The stolen information also include for an enhanced radiation weapon ("neutron bomb"), which neither the nation, has yet deployed.**
- **The PRC has obtained classified inf U.S. thermonuclear warheads, as we reentry vehicles (the hardened shell clear warhead during reentry).**

Low Rate Gamma Irradiation Suppressed MC-Induced Skin Tumors in Mice



K. Sakai, International Hormesis Conference 2005

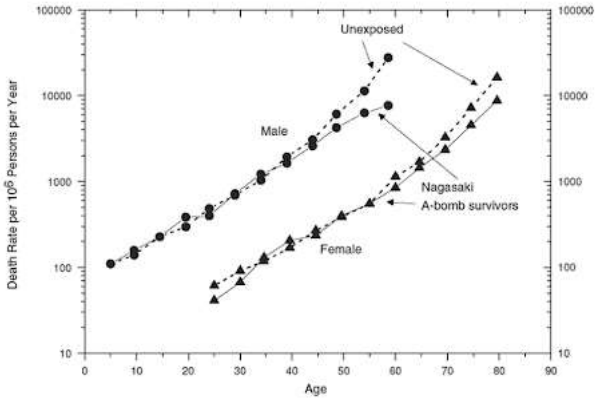
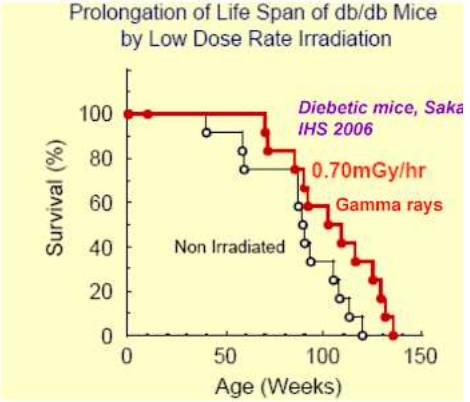


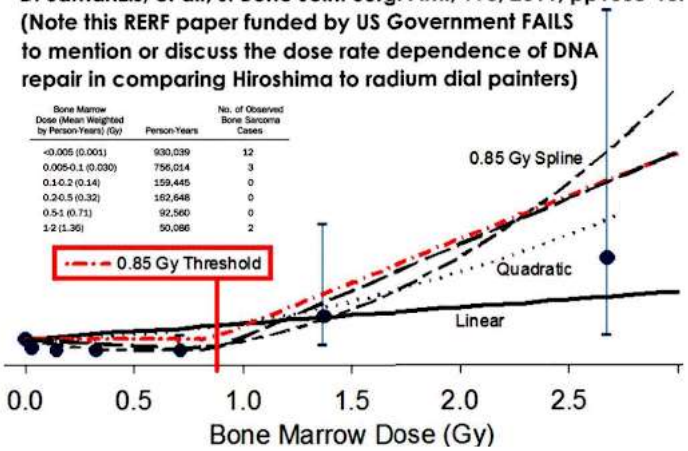
Fig. 13.1 Mortality in male and female Japanese A-bomb survivors and comparable unexposed controls

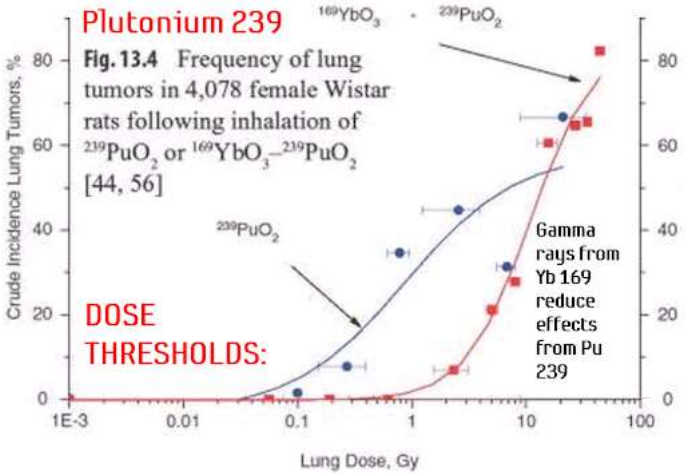
SOURCE: Charles L. Sanders, Radiation Hormesis and the Linear-No-Threshold Assumption, Springer, 2010.

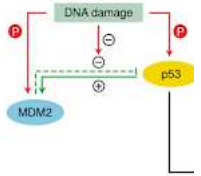


D. Samartzis, et al., J. Bone Joint Surg. Am., v93, 2011, pp1008-15. (Note this RERF paper funded by US Government FAILS to mention or discuss the dose rate dependence of DNA repair in comparing Hiroshima to radium dial painters)

Bone Marrow Dose (Mean Weighted by Person-Years) (Gy)	Person-Years	No. of Observed Bone Sarcoma Cases
<0.005 (0.001)	930,039	12
0.005-0.1 (0.030)	756,014	3
0.1-0.2 (0.14)	159,445	0
0.2-0.5 (0.32)	162,648	0
0.5-1 (0.71)	92,560	0
1-2 (1.36)	50,086	2







Two nearly identical lifespan studi
70-day-old female Wistar rats exposed t
$^{239}PuO_2$ particles. The first study [56] wa
study was with 3,142 rats exposed to
between the two studies was that rats in
γ-ray doses from ^{169}Yb (Fig 13.4).

44. Sanders CL, Lauhala KE, McDonald
aerosol. III. Survival and lung tumors.

56. Sanders CL, Dagle GE, Cannon WC
$^{239}PuO_2$ in rats. Radiat Res 68:340–360

Source: Dr Charles L. Sanders, Radiation Hormesis

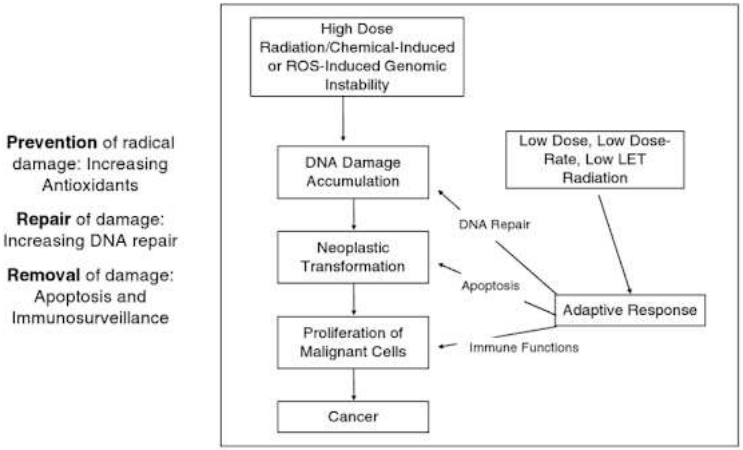


Fig. 2.2 Mechanisms of prevention, repair, and removal of ROS and radiation damage

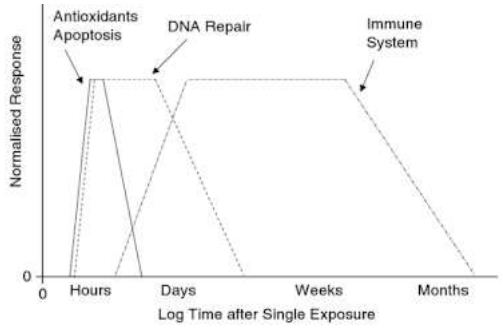


Fig. 2.3 Temporal stimulation of antioxidants, DNA repair, apoptosis, and the immune system following exposure to ionizing radiation [49]

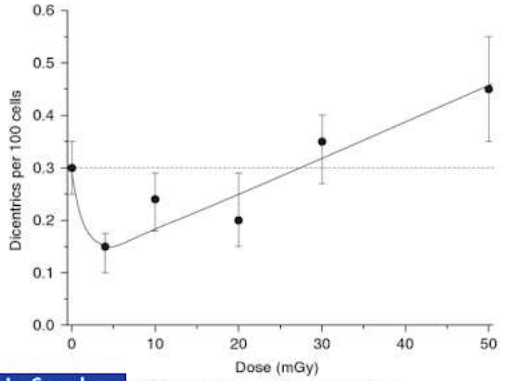


Fig. 2.6 Dicentric chromosome aberration yield as a function of radiation dose [82]

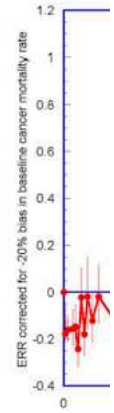
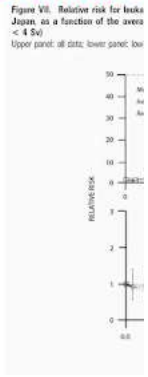


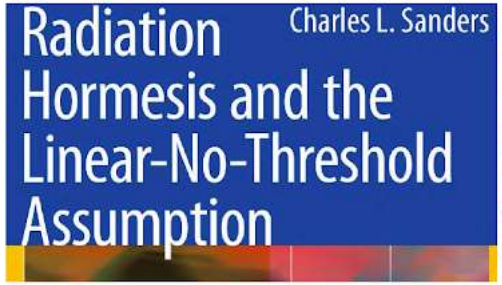
FIGURE 3. Excess relative ri
rected for -20% bias in baseli
are 95% CI. The obvious requ
point.

SOURCE: Doss
THRESHOLD M
HORMESIS," D
Journal: Vol. 1



"Ignorance and misinformation can handicap the progress of a city or a company, but they can, if allowed to prevail in foreign policy, handicap this country's security. In a world of complex and continuing problems, in a world full of frustrations and irritations, America's leadership must be guided by the lights of learning and reason - or else those who confuse rhetoric with reality and the plausible with the possible will gain the popular ascendancy with their seemingly swift and simple solutions to every world problem."

- President John F. Kennedy's ungiven speech to the Dallas Trade Mart on 22 November 1963.



When the "Linear No-Threshold" assumption of radiation was formulated by Lewis in 1957 (in opposition to bomb fallout!), it was TOTALLY UNKNOWN that radiation unbinds DNA repair enzyme P53 from its MDM2 inhibitor!

WASHINGTON SCENE...*from the AIAA Washington*

ASTRONAUTICS & AERONAU
January 1981

● CIA Deputy Director John McMahon, in testimony before a House Intelligence Subcommittee, estimated that the Soviet Union had spent $200 million on propaganda and covert campaigns against NATO deployment of enhanced-radiation (neutron-bomb) weapons and the modernization of theater nuclear weapons.

Enhanced radiation weapons (ERW) increase radiation while greatly reducing blast (tenfold) and heat damage to surrounding areas. Made for use in short-range, tactical nuclear weapons such as the Lance missile and 8-in. howitzer, they would probably be used against large concentrations of Warsaw Pact tanks, a major threat to NATO.

The campaign against the neutron bomb began in the summer of 1977 and was manifested in a series of coordinated diplomatic moves, overt propaganda, and covert political action, said McMahon. It began in the Soviet and East European press and spread to communist international front groups all over the world. "The purpose of this front-group activity was to maintain the campaign's momentum and to draw noncommunists into the campaign, particularly in Western Europe. What had begun as a Soviet effort now appeared to many as a general public reaction to the alleged horrors of the neutron bomb," said McMahon.

By far the most important comments, said McMahon, appeared in the noncommunist press in the political center

While it is difficult to assess the full impact of the anti-neutron-bomb campaign, the Carter Administration in April of 1978 deferred production of the enhanced-radiation element of the warheads indefinitely while proceeding with modifications to the warheads themselves to make them compatible with ER components. In commenting on the results of the Soviet bloc campaign, the CIA testimony quoted the chief of the International Department of the Hungarian Communist Party, Janos Berecz, as saying, "The political campaign against the neutron bomb was one of the most significant and most successful since World War II." McMahon also noted that "the Soviet Ambassador to the Hague (Netherlands) at that time was subsequently decorated by the CPSU (Communist Party of the Soviet Union) in recognition of the success of the Dutch Communist Party under his direction, in organizing the high point of the anti-neutron bomb campaign."

With the neutron bomb temporarily defused, testified McMahon, the Soviet Bloc turned its efforts against the U.S. initiated move to modernize the theater nuclear forces (TNF by deploying the highly accurate ground-launched cruise missile (GLCM) and the Pershing II missile. Scheduled for deployment in late 1983, they will, for the first time, place targets on Soviet soil within range of NATO ground-based missiles. The purpose of the modernization is to minimize th

Approved For Release 2004/09/24 : CIA-RDP81M00980R003200010060-0

SECRET

CIA declassified: CIA-RDP81M00980R003200010060-0

2 September 1977

SOVIET PROPAGANDA: THE NEUTRON BOMB

SUMMARY: The Soviet Union during July and August 1977 mounted a worldwide campaign against U.S. production of the neutron bomb. The Soviets pursued this issue in every media channel and wherever it was possible to stimulate adverse public discussion. These efforts were directed toward pressuring the U.S. to back away from producing the bomb as well as accumulating political capital for Soviet use at future SALT and CSCE talks. As the campaign peaked at the end of August, it was apparent

denouncing the neutron bomb. During the week of 1-7 August, significant attention was directed toward support of the "Week of Action" organized for 6-13 August by the World Peace Council front group. To keep up steam, Pravda on 9 August published an appeal by 28 communist parties against production of the neutron bomb. The American Embassy in Moscow noted that the neutron bomb was the prime Soviet propaganda target.

7. Echoes in Eastern Europe. State Department telegrams from East European Posts agree that the neutron bomb campaign there, which took off in the latter weeks of July, was massive, well-organized and faithfully mirrored the Soviet effort. The campaign employed all channels of public communication: press, radio, television, petitions, public letter writing and demonstrations. Some comments:

10. For the Soviets, the real propaganda paydirt lay in editorial treatment given the neutron bomb by this second group, a performance judged by NATO Secretary General Luns in a 26 August speech as consisting of half-truths, untruths and ignorance. Given the emotional themes which were raised in the neutron bomb debate--saving buildings rather than people; the hypocrisy of Americans advocating human rights in face of the bomb production; the endangering of detente--it was an old-fashion editorial binge which many papers would not deny themselves. And beyond the non-communist, anti-bomb press,

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Approved For Release 2004/09/24 : CIA-RDP81M00980R003200010060-0

The KGB's Magical War for "Peace"

BY JOHN BARRON

It has spread like a raging fever throughout the world. From Bonn to Istanbul, Lima to New York, millions upon millions of people have joined in the nuclear-freeze movement. It is a movement largely made up of patriotic, sensible people who earnestly believe that they are doing what they must to prevent nuclear war. But it is also a movement that has been penetrated, manipulated and distorted to an amazing degree by people who have but one aim—to promote communist tyranny by weakening the United States. Here, in an exclusive report, Reader's Digest Senior Editor John Barron, author of the best-seller "KGB: The Secret Work of Soviet Secret Agents," authenticates in detail how the Kremlin, through secrecy, forgery, terrorism and fear, has played upon mankind's longing for peace to further its own strategic

Fabrications and Fronts

In the Soviet lexicon, Active Measures include both overt and covert propaganda, manipulation of international front organizations, forgeries, fabrications and deceptions, acts of sabotage or terrorism committed for psychological effect, and the use of Agents of Influence.*

The KGB has concocted more than 150 forgeries of official U.S. documents and correspondence portraying American leaders as treacherous and the United States as an unreliable, warmongering na-

[illegible] one of the most damaging was a fabrication titled *U.S. Army Field Manual FM30-31B* and classified, by the KGB, top secret. Field manuals *FM30-31* and *FM30-31A* did exist; *FM30-31B* was entirely a Soviet creation. Over the forged signature of Gen. William Westmoreland, the manual detailed procedures to be followed by U.S. military personnel in friendly foreign countries. These fictitious in-

Façade of Peace

The World Peace Council emerged in Paris in 1950 to foment "Ban the Bomb" propaganda at a time when the Soviets had not succeeded in arming themselves with nuclear weapons. Expelled from France for subversion in 1951, the WPC took refuge in Prague until 1954, when it moved to Vienna. The Austrians also evicted the

READERS' DIGEST, 1983 BOOK EXTRACTS BY JOHN BARRON



Romesh Chandra

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The presi[illegible] the council is [illegible] communist [illegible] Chandra, wh[illegible] has been a co[illegible] and witting [illegible] agent. Intel[illegible] vain and arrogant, Char[illegible] almost embarrassing in his [illegible] adherence to Soviet dictates [illegible] paeans to all things Sovie[illegible] Soviet Union invariably s[illegible] the peace movement," C[illegible] said a few years ago. "The [illegible] Peace Council in its turn pe[illegible] reacts to all Soviet initiat[illegible] international affairs."

Nevertheless, the Russi[illegible] pervise Chandra closely by [illegible] ing both International Dep[illegible] and KGB representatives to [illegible] manent secretariat of the [illegible] Helsinki. The public record [illegible] demonstrates the totality o[illegible] control. In its 32 years of ex[illegible] the WPC has not deviated fi[illegible] Kremlin's line of the mon[illegible] did not raise its voice agains[illegible] suppression of Polish and E[illegible]

man workers in 1953, [illegible] slaughter of Hungarians i[illegible] Soviet abrogation of the n[illegible] test moratorium in 1961, th[illegible] destine emplacement of [illegible] missiles in Cuba in 1962, th[illegible] sion of Czechoslovakia i[illegible] the projection of Soviet r[illegible] power in Angola, Ethiop[illegible] Yemen. The WPC has fa[illegible] criticize a single Soviet arm[illegible] program; only those of the[illegible] And it endorsed the Sovie[illegible] sion of Afghanistan.

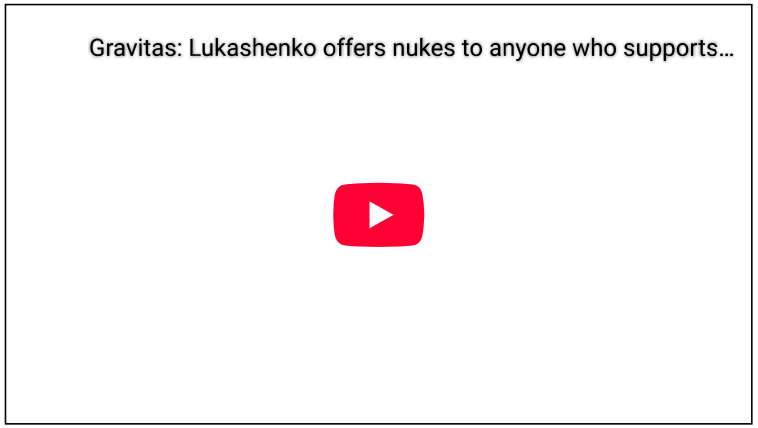
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Russia-Ukraine war: Why is Russia sending nuclear arms to...



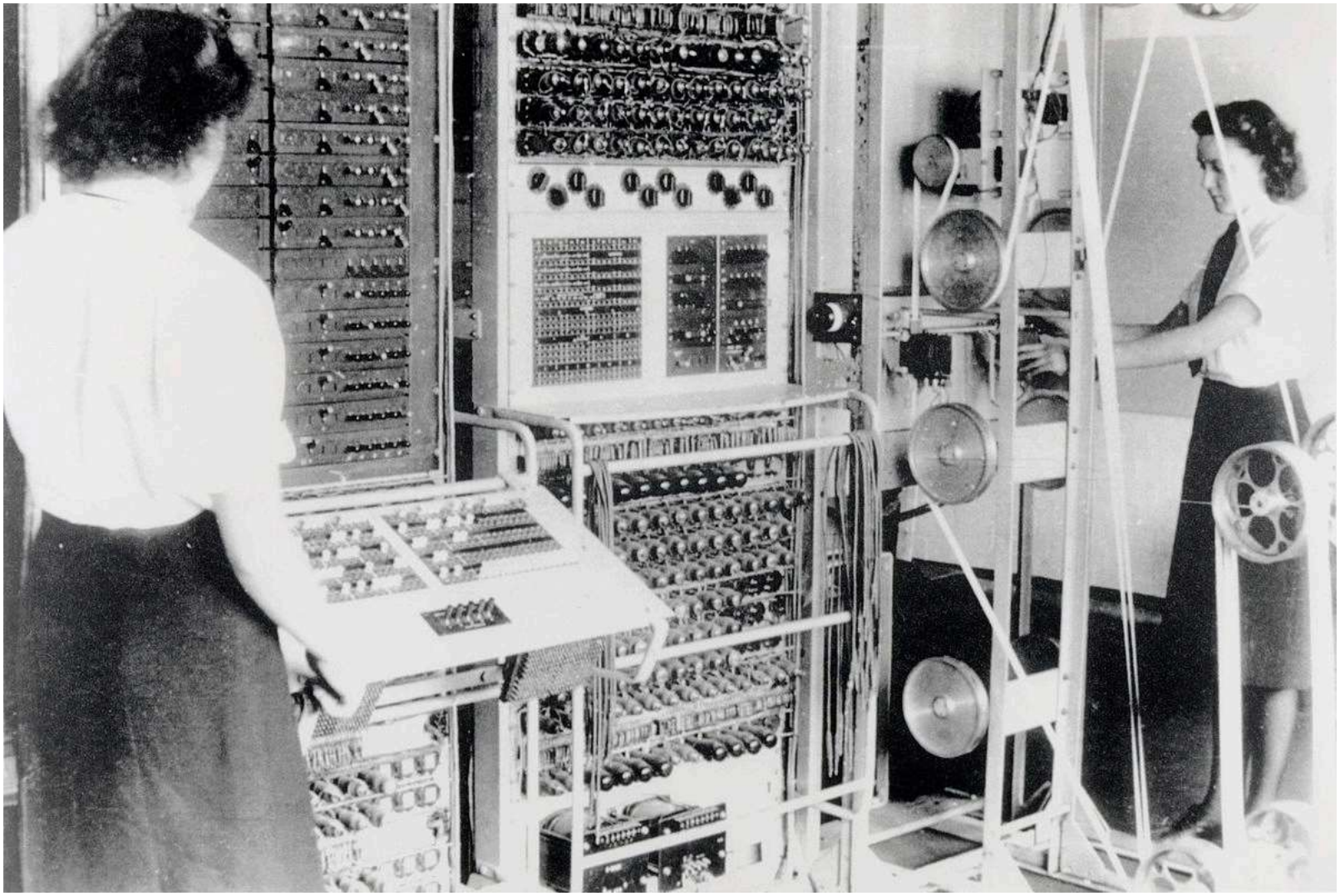
Gravitas | Russia-Ukraine War: Nuclear weapons reach Bela...







Above (12 June 2023 update): please see **https://twitter.com/Nukegate/** for recent escalation news. Bignose (yours truly) has added some videos on the need for activism to get the word out urgently over the crisis. Note that the present hybrid war situation has some elements in common with situations in early 1939 (when Germany had partially but not completely invaded its neighbour Czechoslovakia) and the situation in mid 1914, when the UK government was also deluding itself by focussing on trivial domestic affairs, *rather than on the so-called squabbles in faraway lands between people of whom we couldn't care less.* Particularly, it wasn't really Churchill's brain that smashed the Nazis, but rather the **10,000 staff at Bletchley Park's Enigma codebreakers and later in the war colossus, the first programmable computer, used to find cypher keys to the more difficult Fish code (the higher level Nazi code than the better known Enigma code); until the enemy codes were deciphered, upto El-Alamein in 1942, Britain lost every battle (and just managed to fend off enemy invasion with the Dunkirk Evacuation and the Battle of Britain 1940) but afterwards - forewarned and forearmed by the secret decoding of classified Nazi radio telex signals - the West won victory after victory, a fact suppressed from history due to official secrecy until 1974 (because Enigma machines were sold to governments around the world after WWII and we continued to keep secret the fact we could decode them due to the need to fight the Cold War), so all histories until 1974 are corrupt, and this factor is still being falsely used to give both Monty and Churchill an exaggerated aura of genius which is more honestly ascribed to a programmable 5-ton, 100-logic gate vacuum tubes machine, plus American lend-lease and then entry into WWII after Pearl Harbor. There are horrifying lessons here than we need to face up to squarely, *not through the rose-tinted specs***



of historically corrupt nostalgia! **We are again in potential pre-war era, and time to prepare to survive and prevail may again be running out.**

Western tactical neutron bombs were disarmed after Russian propaganda lie. Russia now has over 2000 - ***Russian propaganda and coercion of the Western nuclear disarmers and its Marx media leads to mass murder with nuclear weapons becoming a repeat of the 1920s-1930s BBC "news" gas war liars led by Professor Philip Noel-Baker*** *(who repeated the same genocidal disarmament "trick" against the neutron bomb in the cold war, as we will show later in this post, below) to shut down credible deterrence and suck up to lying mass-murdering dictators promising heaven on earth*. By the way, the *military* casualty toll for the Ukraine war is only a *small fraction of*

the total murdered due to the ***Western ideologues decision to ensure Ukraine's failure to quickly win the war by only escalating incrementally to suck Putin into WW3, precisely Chamberlain's half-witted approach under pressure from similar liars in the 30s (a deliberate Tom Schelling "play war as a chess game, and don't escalate to win - reverse the long established rules of war and win a Nobel prize in economics for bankrupting humanity),*** *the now "mainstream" fake ideology approach as used by lefty militarists like Ike, Johnson and Biden to lose in Korea, Vietnam, Afghanistan respectively),* ***due to collateral damage in the form of long-term inflated living costs of heating energy and food in Europe as we predicted in 2014****, mass murdering the elderly; something the Yank media like John doesn't seem to give a damn for* (this is a 100%-updated re-blog of **our 22/02/22 post**). Please note that the link to the analysis of the secret USSBS report 92, The Effects of the Atomic Bomb on Hiroshima, Japan (which google fails to appreciate is a report with the OPPOSITE conclusions to the lying unclassified reports and Glasstone's book on fire, is **HERE**, being part of the internet archive page **HERE**. If you don't like the plain layout of this blog, you can change it into a "fashionable" one with smaller photos you can't read by adding ?m=1 to the end of the URL, e.g. **https://glasstone.blogspot.com/2022/02/analogy-of-1938-munich-crisis-and.html?m=1**. See also: **War Plan UK**.

DAILY PRESS, Newport News, Va., Sun., July 1, 1962 3D

Provocative Book About Nuclear

THINKINK ABOUT THE UNTHINKABLE, by Herman Kahn. New York: Horizon Press. 254 pages, $4.50.

Reviewed by Bill Amanna

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Herman Kahn is a physicist who gained national prominence through his book "On Thermonuclear War," in which he described with dispassionate thoroughness what the U. S. could expect in the event of nuclear war. The book unleashed a heated debate over civil defense which is continued in Mr. Kahn's present volume.

The author's chief premise is that although "thermonuclear war may seem unthinkable, immoral, hideous or highly unlikely, it is not impossible. To act intelligently we must learn as much as we can about the risks."

How likely is accidental war? How can it be made less likely? What would conditions be if a nuclear attack leveled 50 American cities? How many American lives and European and Russian lives, would an American President risk by standing firm in differing types of crises? By starting a nuclear war?

Mr. Kahn doesn't stop there. He goes on to put his questions in even more concrete and hence more upsetting terms. He considers, for example, the defense of Europe. We have increased our non-nuclear forces to meet a possible Soviet conventional attack in Europe. The author notes our policy would be to initiate the use of nuclear weapons should conventional forces prove inadequate. So, whether we intend it or not, we may have obligated ourselves to

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There are questions to be answered, Mr. Kahn insists, and he lists a few:

The Nation's Best Sellers

Best sellers of the week as compiled by Publishers' Weekly: The Book Industry Journal.

FICTION

1. SHIP OF FOOLS
By Katherine Anne Porter

go to all-out war.

MUST MAINTAIN PRETENSE

The President, Mr. Kahn holds, may conclude that even if he is not willing to initiate a war or limited reprisal that could easily develop into war, he must maintain a pretense of being willing. Perhaps the facade will work. After all, even if he is not willing, the Soviets cannot rely on this. And, withal, we may in fact do nothing ourselves; it may be forced on us or occur inadvertently.

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EDMONTON JOURNAL, Thursday, July 10, 1980 A6

Lying journalism:

A look into the face of barbarism

By Christopher Hitchens

It's been well said that all politicians are liars. But the general truth of the statement can sometime obscure the truly gigantic, sensational falsehood.

On February 12 this year Mr. William Whitelaw told one of the biggest lies in modern history to the British House of Commons. He said:

"Most houses offer reasonable protection against radioactive fall-out from nuclear explosions. Protection can be substantially improved by a series of quite simple do-it-yourself measures."

Since that date, Mr. Whitelaw's Home Office has reluctantly agreed to publish and sell a booklet called *Protect and Survive*. The reluctance is understandable. In attempting to "flesh out" the Home Secretary's deceitful claim, it reveals it to be even more threadbare and pitiful than it was at first glance.

The pamphlet attempts to reconcile several contradictory elements. The first is the widespread knowledge that there is no defence against nuclear weapons. The second is the government's decision not to provide shelters or organize evacuation in the case of war. The third is the extent to which "Civil Defence" preparation is part of war preparation, and thus a contributor to escalation. None of these obvious assumptions is explicitly stated in *Protect and Survive*, but all can be found in it.

The first point is a very old one. As long ago as 1957 Duncan Sandys's "defence" White Paper admitted that there *was* no defence against a nuclear strike on the United Kingdom. The yield and accuracy of nuclear warheads has increased many, many times since then. More recently Lord Carver, former Chief of Staff, told the House of Lords (on March 6, 1980) that:

"There was no defence against a ballistic missile nuclear attack and it was a waste of time and money to erect one."

Mr. Whitelaw knows this too.



'Civil defence is useless against nuclear attack; it only helps bamboozle the defenceless public'

Yet Air Marshall Sir Leslie Mavor, who is Principal of the Home Defence College, told a civil defence seminar in 1977 that although "the main target areas would be so badly knocked about as to be beyond effective self-help" those parts of the country "holding no nuclear targets" might come through "more or less undamaaged by blast or fire". He opined:

"Their difficulties would be caused by fall-out radiation, a large influx of refugees, survival without external supplies of food, energy, raw materials . . ."

Difficulties indeed. *Protect and Survive* does not even mention them. Its whole intention is not to ensure survival after the event, but to allay public concern before the fact. As you can see, its authors can hardly have believed their own feeble propaganda.

Its authors, in any case, will not have to put their homespun schemes into practice. They will be encased in deep shelters with other selected bureaucrats, military men and "planners". If one single thing exposes the hollowness of the civil defence mandarins, it is the cynical way in which they propose to ignore their own advice.

Not for them the up-ended kitchen table, the brimming makeshift lavatory, the white-washed windows and the improvised sandbag. They propose, and tried to conceal the fact that they propose, to sit it out in air-conditioned bunkers out of town, under the Chiltern Hills. Thus, by a perfect apotheosis of our social relations, the Establishment will actually outlive the people.

Still, *Protect and Survive* is a booklet to keep handy. It advises you, if caught in the open by a nuclear explosion, to lie down and pull a coat over your face. It advises you, if caught in your place of work, that "if you can reach home in a couple of minutes try to do so." If not, "take cover where you are or in any nearby building." It advises

That is perhaps why *Protect and Survive* starts off with such weasel words. It says, in faintly menacing bureaucratic prose:

"**Stay at Home.** If you move away — unless you have a place of your own to go to or intend to live with relatives — the authority in your new area will not help you with accommodations or food or other essentials. If you leave, your local authority may need to take your empty house for others to use. So stay at home."

Clear? Having made sure you are stuck at home, the pamphlet tells you to hide under a table in the room furthest from the roof and the outside walls. It has the grace to admit that you are wasting your time if you live in a multi-storey block or a bungalow, but it doesn't suggest any course of action. It does, however, advise this:

"If you live in a mobile home or other similar accommodation which provides very little protection against fall-out your local authority will be able to advise you on what to do."

You bet they will.

The pamplet suggests reinforcement of the "fall-out room" with sacks of earth, trunks of books etc. It also recommends the laying-in of enough food (and *water*) to last fourteen days (water to be drunk from the lavatory in one fetching illustration). Other sensible measures such as the painting of windows are advised.

The unspoken assumption of *Protect and Survive*, and of the whole Civil Defence program in Britain, is that we would have *three weeks'* warning of a nuclear attack. This, of course, is just what modern nuclear warfare, with its doctrine of "counter-force", is designed to do without. The attack must be a surprise.

But no matter. Major Idwal Roberts, War Emergency Officer for Hertfordshire County Council, recently told his local paper that his team would need "three to four weeks' notice".

If the Soviet Union did not oblige Major Roberts in this way, the position would be as follows. Fylingdales early warning station would transmit a pre-arranged warning to every police station in the country, who would in their turn sound the sirens. The official paper on this says that no more than two and a half minutes should elapse between the first warning and the sirens. But there are only 3.6 minutes to play with. And what if the attack occurred at night? Whatever happened, the last few minutes of civilization in these islands would obviously be something of a scramble.

There is another direct lie at the heart of official propaganda here. For the purpose of getting people to stay put, *Protect and Survive* threatens them with the consequences of leaving home. A film already made for the Central Office of Information, to be transmitted if time permits, says:

"No place in the U.K. is safer than anywhere else. No one can tell you where the safest place will be. In fact you will be far better off at home, because it is where you are known."

you that "you cannot remove radiation from water by boiling it." It advises you to "remember that you may hear a fall-out warning without hearing an explosion." It advises you, in perhaps its finest sentence, that:

"If there is structural damage from the attack you may have some time before a fall-out to do minor jobs to keep out the weather — using curtains or sheets to cover broken windows or holes."

Civil defence is useless for a nuclear weapons power. It only helps to coerce and bamboozle a population into accepting, step by step, a level of risk which it would never accept at one go. The Home Office planners envisage 13,000 Hiroshimas, or 200 megatons, as the likely order of devastation we would undergo. We are looking straight into the face of barbarism. It is that face which *Protect and Survive* wishes to obscure. Is it too late for the people to prepare to outlive the Establishment?

New Statesman, London

THE EVENING STAR
Washington, D. C., Friday, June 26, 1959
A-7
★★

great majority of the population would be outside the devastated areas, he said.

"We can save them easily," Dr. Libby said.

His program for saving most Americans was described this way:

"First, tell the people what they may be up against.

"Second, tell them what actions are to be taken before, during and after an attack.

"Third, support their efforts with new information, new tools and devices and new techniques."

Even a massive attack would not destroy the American economy, Herman Kahn, of the Rand Corp., told the subcommittee. Mr. Kahn said a recent study by the research corporation led to the conclusion that nuclear war would not be suicidal.

the war but would be able to restore some semblance of prewar society quite rapidly," he said.

"Inexpensive measures designed to insure national survival in an all-out war of the early 60s might be fairly cheap and relatively reliable — something of the order of a billion dollars or a fraction thereof should be sufficient," he said.

The assurance that America would survive a war would add to the value of our policy of war deterrents. The Soviet Union, Mr. Kahn said, would be more reluctant to "blackmail" or attack the West if they knew that Western threats of retaliation were not based on a suicidal plan.

Subcommittee members emphasized the necessity for a

"The majority of our population would not only survive start on a national shelter program.

THE EVENING SUN, BALTIMORE A 24
WEDNESDAY, JUNE 27, 1962

Books In Review

A Prod To More Rational Thinking About Thermonuclear Policy

THINKING ABOUT THE UNTHINKABLE. By Herman Kahn, Horizon Press. $4.50.

THINKING about the unthinkable or even the hard to think about (in the author's terms) is not nearly as difficult as it sounds, in the case of Herman Kahn's newest exploration of national obligations with regard to thermonuclear war. His new book starts out in defiance of the criticisms of his previous impressive work "On Thermonuclear War." He denies the theory that "it is immoral to think, and even more immoral to write in detail about having to fight a thermonuclear war," and deplores that "we Americans and many people throughout the world are not prepared to face reality."

For while such a war may be regarded as "unthinkable, immoral, insane, hideous, or highly unlikely it is not impossible; to act intelligently we must learn as much as we can about the risks; we may thereby be able better to avoid nuclear war." The alternatives he finds include defeatism, inadequate preparations, and pressures toward either preventive war or undue accommodation. Mr. Kahn (who has left both Rand and Princeton and now heads the Hudson Research Institute) cheerfully takes on the opposition of Bertrand Russell and C. P. Snow, one of whose best known observations on nuclear war Mr. Kahn finds "neither accurate nor responsible."

—o—

Here is an extraordinarily readable discussion of where we are today—not in weapons and defenses, but in the making of policy. There is a survey of how one thinks solely of providing milk for the baby but plans nothing for the rest of the family.

Americans, he finds, are reluctant to plan systematically against war, primarily because they do not regard force as reasonable. This is "a somewhat naive view; force has been around for many years; it has been used by good, bad, and indifferent people, rationally as well as irrationally." But even very thoughtful planning can go awry because advance estimates can be far from accurate. When the Korean war opened, for example, who would have dared predict that United States pilots would shoot down sixteen Korean pilots to every American lost? Yet it did happen that way, and it had its effect on the whole war.

Mr. Kahn contributes some substantial ideas on civil defense, based on his suspicion that destruction of an enemy population is far from a likely first aim; hence that there is a larger chance of city survival than has sometimes been thought, and hence justification for increased effort to save as many civilian lives as possible. This is not comparable to the real first priority objective, which is the full deterrence of war, but it is not negligible. The author sharply discounts some of the gloomiest predictions of total destruction and, while recognizing the tragedy of any civilian loss at all, insists that reduction of the loss is not only possible but wholly desirable.

—o—

Against that large and well pre-

wars can start—inadvertently, or by miscalculation, or by plain calculation, or by catalysis (through a third nation leading Nations A and B into conflict, much as a Serbian-Austrian dispute in 1941 finally plunged Russia, Germany, France and Britain into World War II).

There is a portrayal, thereafter, of five kinds of attack—involving various combinations of an attack on populations, property and military. Mr. Kahn offers no estimate on which combination is the likeliest, observing that there is no legal or logical requirement that either side in a conflict be guided by reason. He discusses the likelihood of survival under varying conditions governed by the sort of war which is fought, and offers a salutory reminder that "first-priority" considerations do not rule out a proper concern for lesser priorities—any more than in ordinary civilian planning

Against that large and well presented background Mr. Kahn lists the problems of the future. Most of them are extremely disagreeable but that does not disqualify them as subjects for sober thinking. He follows with a recital of fourteen possible national policies, ranging from a total renunciation of all violence to a pre-emptive war. In that gamut almost anyone can find his own favorite policy, with a certainty that he will be opposed by advocates of all the other thirteen.

This granted, some thinking on the future is still desirable, particularly if Mr. Kahn is right in his estimate that the decade of the Sixties will prove more of a turning-point than any other period of the century. And if he is right in his reasonable belief that even lucky muddling-through would benefit by some guidance from systematic thinking.

MARK S. WATSON.

Reader's Choice

THE SUNDAY STAR
Washington, D. C.
June 24, 1962

Prophet of Changing Nuclear-War Policies

THINKING ABOUT THE UNTHINKABLE. By Herman Kahn. (Horizon Press; $3.50.)

America's nuclear-war polices have changed radically during the past year, and Herman Kahn has been the prophet of that change. The bible of the new and dominant nuclear school is his book, "On Thermonuclear War," which has sold an astonishing 30,000 copies since publication in 1960. That bible was written for the priesthood, however, and its great length and difficult new language has kept the broad public from understanding just what Mr. Kahn and his fellow thinkers about war are driving at.

This new and most welcome book, "Thinking About the Unthinkable," is designed by Mr. Kahn to do three things:

- First describe his basic ideas in more simple language.
- Second, tell about the strange techniques used by professional military analysts.
- And, third, stimulate more thinking about "unthinkable" modern war.

Someone Must Do It

Mr. Kahn, director of the Hudson Institute, is a happy extrovert who likes his work. This seems to infuriate a number of persons who attacked him personally after his first book for his failure to affect the long face of an undertaker. But Mr. Kahn points out that someone has to think about nuclear war just as someone has to think about cancer and polio. No rational person can fault him on his logic, though his ideas might sell better if he started each chapter with, "Heaven forbid it should happen, Western powers make sweeping concessions there and points out, truthfully, that there is no way NATO forces can save the city without starting a nuclear war that could well ruin the United States. Mr. Kennedy replies with the threat of a doubled or quadrupled defense budget. "Such an acceleration of the arms race, dangerous as it is, could still be less dangerous (for America) than either an attack or an accommodation," the President says. Mr. Khrushchev will either have to fall behind in the race or damage his tight economy. The threat makes him back down.

In a small way this was done last year, but Mr. Kahn's scenario is, in effect, an outline of a bolder plan for handling a future life-or-death crisis without the war Mr. Kahn—and the rest of us—hopes to avoid.

This is an important book and an excellent opportunity to see one of the nuclear age's most influential minds in action.

—RICHARD FRYKLUND.

Other Books

GENERAL

A CRUISING GUIDE TO THE CHESAPEAKE. (Including the Passages from Long Island Sound along the New Jersey Coast and Inland Waterway.) By Fessenden S. Blanchard. (Dodd, Mead; $6.50.) (Revised Edition.)

THE THOMAS WOLFE READER. Selected with an introduction by C. Hugh Holman. (Scribners; $7.50.)

but. . . ."

The techniques of strategic analysis are the most fascinating part of the book. He gives many examples of mental gymnastics such as "war and peace games," "scenarios" and "abstract models" which simply serve to force analysts to think of all possible dangers and opportunities in various strategies and methods of crisis management. These "sophistications," which could be overlooked in the old days without fear of losing a civilization, are regarded by the administration as necessities in the nuclear age.

Future Ultimatum

One rather casually presented "scenario" is alone worth the price of the book. This is a brief story about one way in which some future ultimatum over Berlin might be handled. In Mr. Kahn's little drama, Chairman Khrushchev tells President Kennedy that he will seize West Berlin unless the

All four of Wolfe's novels are represented in order of publication with several fully self-contained passages from each and included also are eight short stories and in its entirety "The Story of a Novel."

DIARY OF THE CIVIL WAR, 1860-1865. By George Tem-

The Sunday Star

WEEKLY BOOK SURVEY

The Sunday Star has arranged with of the leading book sellers of Washin and suburban areas to report each the books which sell best as a guid what Washington is reading. The n bers represent the rank of each among best sellers at the store na

For Week Ending June 22

FICTION
1. "Ship of Fools," Porter
2. "Youngblood Hawke," Wouk
3. "Dearly Beloved," Lindbergh
4. "Bull From the Sea," Renault
5. "The Reivers," Faulkner
6. "Agony and Ecstasy," Stone
NONFICTION

THE DAILY TELEGRAPH

WEDNESDAY, JULY 22, 1981

135, Fleet Street, London, E.C.4.

Tel: 01-353 4242. Telex: 22874/5/6.

Classified Advertisements: 01-583 3939.

BARRIERS TO WORK

YESTERDAY'S UNEMPLOYMENT FIGURES were somewhat less awful than the Government had feared or the Opposition had probably in private hoped. It had been thought that distortions resulting from the Civil Service dispute might push the crude total beyond three million; and Mr Foot's decision to table a vote of censure on the Government reflects in part that expectation, and in part the imminence of the long Parliamentary summer recess. Nevertheless there will be no shortage of material for doom-laden predictions. Constructive thinking is likely to prove in rather shorter supply.

From Mr Foot, chastened by his experience in the last debate on unemployment, when his natural bent for irony left him wide open to the charge of frivolousness, we may expect to hear about the Labour party's plans upon a sea of printed money. From the Prime Minister and from, Mr Prior, the emphasis will presumably be on the continuing priority of the battle with inflation, and on schemes to widen job-experience programmes for the young. Unlike the Labour approach, which simply lacks all credibility, this is fine so far as it goes. But it still leaves virtually undented many of the artificial and unnecessary obstacles in the way of pricing people back into genuine employment.

Wages Council awards which seem to disregard ability to pay and make a profit; national wage agreements which ignore both the regional variations in demand for the labour and the differing circumstances of the companies to which they apply; the erosion of differentials between the teenage and the adult wage; inhibitions to recruitment created by regulations about "unfair dismissal" and misnamed

CND AND THE COMPANY IT KEEPS—I

Britain's nuclear phoen

BRITAIN, like the rest of Western Europe and the United States, but not the Communist bloc, is experiencing a new phenomenon, the re-birth of the anti-nuclear campaign. Strong among the young and middle-class, and fuelled by concern over the Harrisburg mishap and stationing of Cruise missiles in Britain, the Campaign for Nuclear Disarmament has risen like a phoenix from the ashes.

Twenty or more years ago, there were the Aldermaston marches. I remember when on leave from Germany watching the bedraggled procession traipse past Westminster Abbey. Fresh from the Berlin Wall, I was not impressed.

The anti-nuclear movement is no longer just against the bomb. It is now also against nuclear energy, which will eventually replace oil, if not coal, as a major life-blood of society. For that reason, as well as abandonment of the deterrent, it serves the purposes of the Soviet Union.

Only a decade ago, the Campaign for Nuclear Disarmament was in hibernation. Today, it claims 22,000 members (I joined myself for the purpose of this article), 1,000 local groups and hundreds of affiliated organisations. It still has the active support of Mr Foot, Opposition leader and a veteran Aldermaston marcher, Mr Wedgwood Benn and the Labour party. Soon, it might have endorsement from the TUC.

The reasons for its revival are apparent. No one likes the thought of nuclear incineration, nor of radiation affecting one's children.

But what is the anti-nuclear movement? Everyone is aware of CND, and Mr Nott, Defence Secretary, is committed to combating its propaganda. Yet little is actually known about it. Least of all about the Far Left involvement.

★

THE anti-nuclear movement is something amorphous. It comprises more than 70 organisations

more "liberal" causes over the years, including War on Want, Pax Christi, "the international movement for peace," the Bertrand Russell Peace Foundation and, increasingly, CND.

Clerics play a prominent part in the anti-nuclear movement. A vice-chairman of CND is the Rev. Paul Oestreicher, of Southwark, born in Germany and honorary secretary for East-West relations of the British Council of Churches. Another Anglican activist is Canon Eric James, director of the socialist Christian Action.

The Rev Edward Norman, Dean of Peterhouse, Cambridge, has criticised the role of clerics in CND. While acknowledging Msgr. Kent as a serious, respected and

The anti-nuclear lobby is is no longer just against the bomb but against nuclear energy and so doubly serves the aims of Communism, says

BLAKE BAKER

influential priest, he also described him as an "agitator," urging sailors at Faslane nuclear submarine base not to handle rockets, the Roman Catholic Church to abandon "excessive loyalty to the Government of the day" and a reassessment of attitudes to Communism. Ironically, the clerics in CND have been described by the Far Left as "vicars and faith-healers."

A flood of propaganda is produced by CND, based at Finsbury Park, and associated organisations. It includes pamphlets, leaflets, badges, posters, stickers, cassette recordings, pens and even balloons. The banned BBC film, The War Game, is on regular hire as

a pamphlet, "Fright T
a detailed map of t
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WISE also publicises
Far Left organisations i
and Europe.

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About 1,000 CND
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THE anti-nuclear
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was a condemnation by

"equal opportunities" — these and so many other distortions to the labour market serve unnecessarily to lengthen the dole queues, most of all among the young. Not all of them are susceptible to Government action. But those that are cry out for tackling, while, in the case of some that are not, money spent on selective subsidy to jobs might be better spent than that committed to "work experience" with but modest prospect of long-term employment resulting.

THE NATION'S VOICES

THE FOREIGN OFFICE is obviously a little shamefaced about its persistent attempts to reduce the External Services of the B B C. The latest cuts (to save £3 million by removing seven language services, including Spanish for Europe, French and Italian) were announced to coincide with the larger row about Mr NOTT's reorganisation of the nation's defences and so slip by unnoticed. Now the Foreign Affairs Committee of the House of Commons reports that when it heard evidence on the External Services, no one in the Foreign Office took the opportunity to inform it about the imminent reductions. Neither ploy to distract attention has been successful.

Even without the new information, the House of

prises more than 70 organisations, including many environmentalist groups, such as Friends of the Earth, the Ecology Party, Greenpeace which operates its own trawler Rainbow Warrior, the National Council of Churches, the National Council of Civil Liberties and even the National Federation of Women's Institutes.

There are parents' and local residents' associations, a host of political parties, including the Liberals, Scottish and Welsh nationalists. There is the so-called "brown bread and sandals brigade." There is also the Far Left, the Communist party, the Trotskyist Socialist Workers party and International Marxist Group, the Russian-front World Peace Council and others. There are numerous academics and intellectuals.

The chairman of C N D is Hugh Jenkins, former Left-wing Labour M P for Putney and one-time Arts Minister. The general secretary is Msgr. Bruce Kent, once private secretary to the late Cardinal Heenan, who has espoused ever

are other "horror movies."

Some of the propaganda is bizarre, and aimed to frighten. One item is a facsimile front page of the DAILY MIRROR, bearing the by-line of a former staff member, headlined "Cloud of Death," and postulating 2,000 dead and 50,000 at radiation risk following a blow-up at Sizewell nuclear power station, Suffolk.

Serious problems have been caused for the Central Electricity Generating Board with marches and demos. In Cornwall, drilling for the site of a new nuclear power station was blocked by demonstrators, with women chaining themselves to a drilling rig.

That leads to the affair of the nuclear waste train, and international connections. In Oxford, there is W I S E, the British end of the World Information Service on Energy, based in Amsterdam, and linked by telex with other offices in Brussels, Helsinki, Copenhagen, Tokyo, Verona, Barcelona and Washington D.C.

It was W I S E which published

Lord Mountbatten, a mo
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row.



Helping hands — children help cut turf which another lays on top of the shelter.

Testing time begins in a nuclear shelter

By Paul Keel

A do-it-yourself nuclear shelter should have taken two men two days to construct, according to a Government pamphlet. But Ben Hayden, who followed the Home Office's instructions, found that he needed six days and a lot more assistance.

Before he and his dozen or so helpers began building the tent-like bunker sunk in the urban soil of Limehouse, East London, he first had to hire the scaffolding that serves as its superstructure. Then he had to acquire the plywood that forms the shelter's inner walls and roof.

But at noon today, with the task completed and well behind the schedule indicated in the Home Office's publication, Domestic Nuclear Shelters Technical guidance, Mr Hayden, a 23-year-old van driver, will crawl into his Armageddon sanctury built to Government specifications to begin a two-week trial of its feasibility.

Mr Hayden says this is the period of confinement recommended in existing Home Office guidelines — a notional period after the blast during which the dangers of radioactivity in the air would have receeded.

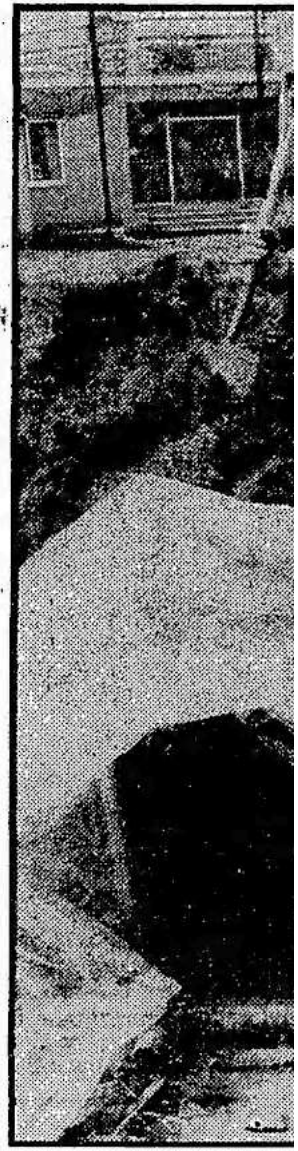
To guard against the anticipated pollution entering his refuge, Mr Hayden has followed the guidelines and stuffed wire-wool down the two lengths of plastic drainpipe that form the bunker's ventilation.

The shelter is designed for two people with a fortnight's provisions. But sharing the cramped area (about the size of a two-man tent) with Mr Hayden will be just his supply of tinned food, water and a bucket for sanitation.

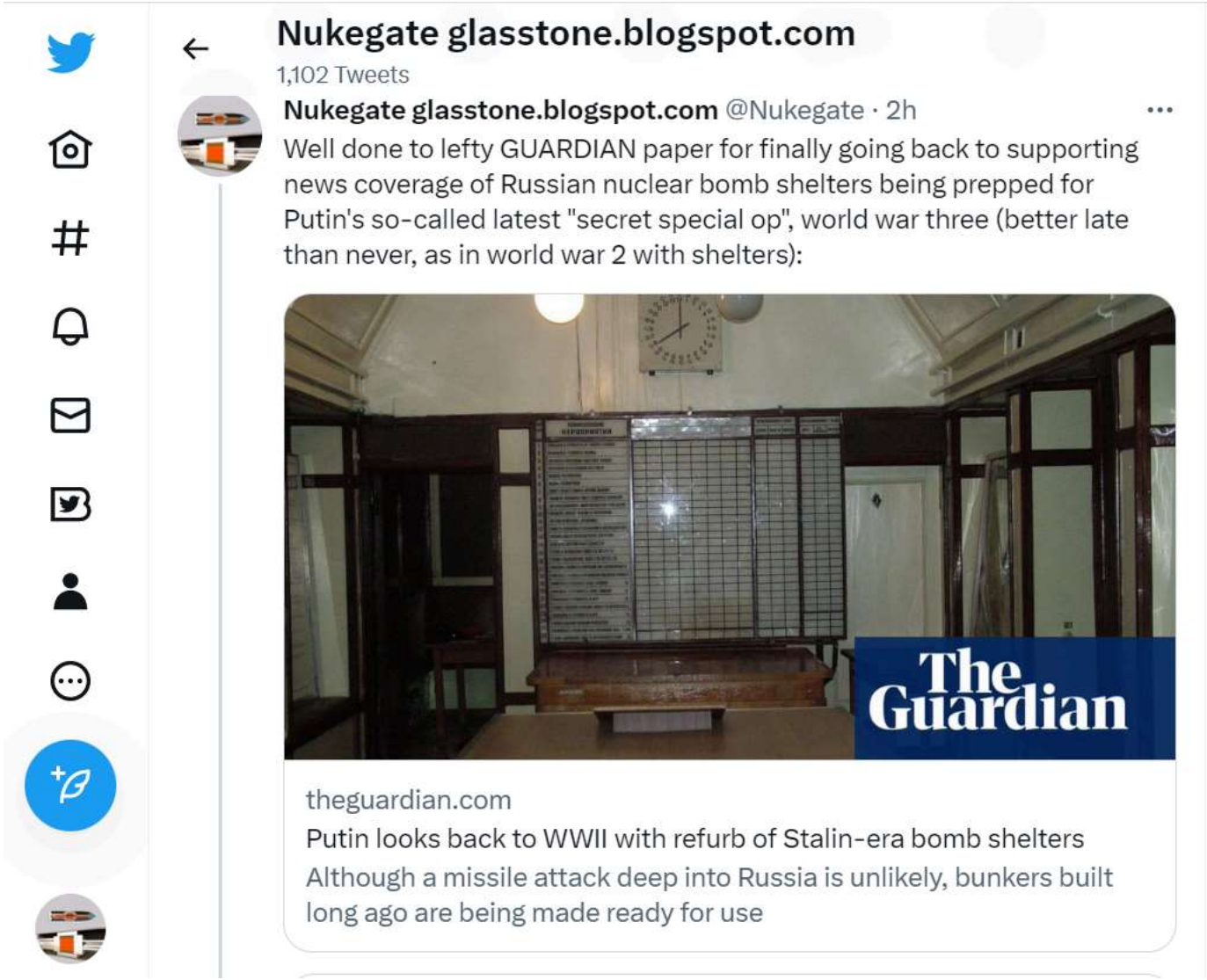
Putting the finishing touches to the shelter, erected on a patch of wasteland overshadowed by council flats, Mr Hayden insisted yesterday that his purpose was to give the Home Office's advice an objective trial.

He is a member of the local branch of the Campaign for Nuclear Disarmament, but he said the exercise was not being mounted in the spirit of a protest.

He intends to spend the next 14 days in the shelter, isolated from the outside world. He thinks this will prove to be the biggest challenge to his endurance.



Mr Ben Hayden and his



ABOVE: left-wing **Guardian finally reports (better late than never) Russia's cold war Stalinist nuclear shelters (developed from the results of Stalin's nuclear tests, as we will reveal in detail in this blog post, below) are being prepared for WW3 in 2023, but naturally claims it is not for WW3, but merely in case a missile goes astray from Ukraine into Russia (the official "Brezhnev era apparatchik"-line, strike that and replace Brezhnev with Putin): "Although a missile attack deep into Russia is unlikely, bunkers built long ago are being made ready for use."**. Our twitter feed, **https://twitter.com/Nukegate** keeps you informed of the latest Russian TV nuclear war plans and shelter preparations. When Russian shelters are fully ready, we can expect the Ukraine war to escalate rapidly. Yahoo news for instance reports:

"**Russia's Secretly Splurging on Bomb Shelters 'Everywhere,' Report Says. The Kremlin has quietly ordered an upgrade to bomb shelters across Russia, according to four former and current Russian officials who spoke with The Moscow Times. "An order was given from Moscow to carry out this work everywhere—inspection and repair," ... Local authorities have reportedly spent hundreds of millions of rubles on the bomb shelter preparations, which allegedly began in February 2022 after Russia invaded Ukraine. The preparations will reportedly continue this year. And although in some regions authorities have installed signs near the shelters, some authorities have sought to downplay the updates, in an apparent attempt to avoid causing panic. ... Moscow has refused to allow U.S. inspections on its territory since August, and NATO ambassadors said in a statement last week that Russia is failing to comply with its obligations under the New START Treaty. ... Russia accused Ukraine without evidence of preparing a dirty bomb—a weapon with both conventional explosives and radioactive material—as fears mounted that Russian President Vladimir Putin was working to create a justification to use nuclear weapons**." Russia's nuclear labs also released the following photo of Western neutron bomb disarmament fanatic Dr Joseph Rotblat patting the Russian nuclear bomb of Russian neutron bomb inventor Dr Boris Litvenko (a war mongering USSR restoration advocate, the guy with big eyebrows on far right). Rotblat is a hater of Western nuclear weapons and Western civil defense, but not Russian.



Dr Rotblat of PUGWASH and Russian mass murder with Litvi


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CRUISE
SS20
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NEUTRON BOMB...
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THE ARMS
RACE NOW
START THE STEPS TO SURVIVAL
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Deutsche Friedensgesellschaft-
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Sunday 21 May 1978, San Francisco Examiner

ANALYSIS & OPINION

The Neutron Bomb — Is It 'Clean' Or 'Dirty'?

By Tony Geraghty and Reuben Ainsztein

IN THE pale green corridors of the Pentagon a batch of unofficial photocopies has been taped to the walls. They read: "Bows and arrows kill people but leave buildings intact." The notices parody the objections of the Kremlin and others not so much to the longbow as to the Lance and other missiles capable of delivering NATO's newest and most controversial weapon, the neutron "bomb."

The "bomb" — actually, a shell or missile warhead — is a nuclear device in which the explosive energy is mostly released as neutron radiation rather than heat and blast. Like the arrow, it kills people, sometimes slowly and painfully. Unlike the arrow it penetrates buildings and tanks to do so. But beyond an immediate blast area a few hundred yards across, it leaves the buildings intact while releasing an invisible bombardment of neutron radiation which causes damage to the mammalian central nervous system.

It is the weapon's novel capacity to destroy life while



HAIG

leaving property intact that has generated so much hostility on both sides of the Iron Curtain. While there is plenty of emotional resistance to the bomb as a "people killer," many noted Western authorities who have had reason to think about the likely patterns of future nuclear war believe it raises more rational worries. In one way or another, they believe, the ground ruins of nu-

words of Gen. Johannes Steinhoff, former chairman of NATO's Military Committee, the new weapon "makes the unthinkable conceivable."

Eric Burhop, professor of Nuclear Physics at University College, London, a nuclear weapons pioneer who has converted to nuclear disarmament, says, "It is the weapon par excellence of the aggressor who is determined to take over intact cities and industries of another country."

Herbert Scoville, former deputy director of the CIA, believes that enemy soldiers "receiving even ten times a lethal neutron radiation dose could still continue to fight effectively for about half an hour and die only a day or so later ..." By implication, such troops would be converted into kamikaze squads.

On the Soviet side, Dr. Boris Petrovsky, U.S.S.R. Public Health Minister, has used quite different arguments; that the multiple use of neutron warheads would not mean that damage would be limited, as is claimed, or that civilian casualties would be light. He recalls that individual air-dropped bombs of the Second World War theoretically caused only a few dozen yards' destruction.



LANCE MISSILE TEST FIRING IN NEW MEXICO

the destructive power of existing tactical devices now aimed at and from Europe. That total is 12,000, of which about 7000 are in NATO hands. Each averages 20 to 50 kilotons of explosive power — equivalent to 20,000 to 50,0000 tons of TNT — and compares with the 20-kiloton weapon dropped on Hiroshima. The warhead on Russia's latest Euro-missile, the SS-20, is thought to be equal to a million tons.

The multiple use of neutron warheads would not mean limited damage . . . or light casualties

Yet "it is enough to recall the ruins of Stallingard, Coventry, and Dresden."

There are, of course, contrary views held by equally informed minds. In general, these hold that it is better to have a deterrent which is credible, and can be used in open countryside against tank formations, than a Pyrrhic weapon which scores on a grand scale, destroying friendly cities.

Perhaps the most persuasive

The fact that the neutron bomb is not deployed, and that West European opinion is still deeply divided about the weapon, is the result of a complex blend of historical accident, miscalculation in the West about Russia's growing capacity to make nuclear war, and the long, sometimes chaotic processes by which democracies arrive at important decisions.

The concept of "enhanced radiation" weapons has a long

and the first device was tested in 1963. The idea was further fleshed out as the Spring antiballistic missile, tested in 1965. Then the SALT I agreement of May, 1972, froze ABM systems and put the neutron plans into storage. Only briefly, however, because U.S. interest in such weapons was reawakened a year later by the Schlesinger doctrine of "flexible response" to Soviet attack.

James Schlesinger was then President Nixon's Defense Secretary, and he proposed a gradual escalation, rather than all-out nuclear war from the start of hostilities. Over the next three years the neutron idea was discussed by NATO's Nuclear Planning Group, of which Britain's Defense Minister was a member, and was consistently applauded.

Within the U.S., the Army and government nuclear scientists started on the next major step, to develop a miniature version of the neutron weapon suitable for the battlefield, small enough for guns as well as missile launchers. The result was the W-70-3, a one-kiloton warhead for the Army's Lance missile (with which British troops were equipped) and, later, the W-79, an eight-inch artillery shell. Within the

seemed at last that NATO had an answer to the chronic 3-to-1 advantage of Warsaw Pact tank forces.

Subsequently both NATO's Secretary General, Joseph Luns, and its Supreme Commander, Gen. Alexander Haig, publicly appealed for NATO to adopt the weapon. All seemed set to go ahead — but in the meantime two things had happened: 1) Soviet power had grown; 2) the military's enthusiasm for the neutron bomb was by no means shared by everyone.

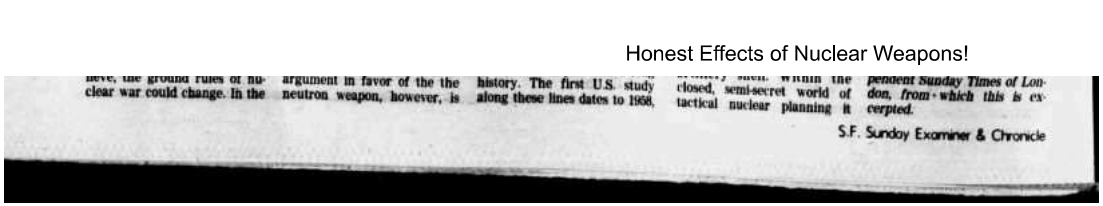
During the years that U.S. military scientists worked on a tactical neutron warhead, the Soviets were working to achieve nuclear parity with the U.S. in every other area, whether battlefield weaponry or intercontinental ("strategic") missiles. As NATO Commander Haig admitted last October, this new parity worries Western strategists. It inhibits NATO's nuclear planning and helps explain why Moscow feels confident enough to make the West's latest nuclear weapon a major issue.

In other words, when the West had a substantial advantage over the Russians in larger, "dirtier" weapons, the neutron bomb was a smaller, cleaner response alternative to a sudden conventional Soviet tank advance. But now that the neutron bomb is a practical possibility it is no longer simply an alternative defensive weapon; it disturbs an emerging balance of power and in that sense is "destabilizing." It is this coincidence of events which has made the new weapon so vulnerable to public opinion and has led the Soviets to exploit the dilemma again and again.

In recent months the press took up the story worldwide, some treating the weapon as the latest, most fashionable artifact from the world of Dr. Strangelove. NATO did not, as expected, Vote in favor of deploying the weapon in Europe. President Carter did not, as expected, approve its production. The weapon remains in limbo. The publicity seems to have been largely responsible.

The neutron bomb seems certain to come up at the next NATO summit meeting at Washington this month. By a near coincidence, while NATO gathers in Washington, the UN in New York will be holding a special General Assembly session on disarmament.

Tony Geraghty and Reuben Ainsztein write for the inde-



lieve, the ground rules of nuclear war could change. In the argument in favor of the the neutron weapon, however, is history. The first U.S. study along these lines dates to 1958, closed, semi-secret world of tactical nuclear planning it pendent Sunday Times of London, from which this is excerpted.

S.F. Sunday Examiner & Chronicle

of the Ukrainians, deported to remote parts of Siberia, are uprooted and so weakened in their possible political, national, and even physical resistance, that they cannot be expected to start any irredenta. Besides, such procedures are an excellent safeguard against plebiscites in the future. Ideological purity of the country of Proletariat is also better preserved if Spaniards, who had fought against Franco in the Civil War and had to flee from their country, are settled in the Uzbekistan; they had been given all sorts of promises by Moscow, only to find themselves deported and forced to lead a meager existence, toiling in the cotton fields, side by side with the Koreans just as ill fated, transplanted here sometime between 1934-1939 after the border skirmishes, constituting a sort of an unofficial war between the Soviets and Japan.

Such methods seem completely incredible and repulsive to the civilized mind. Obviously they are indicative of a profound contempt for human individuality. One infers

liver a definite blow to the state as an institution resulted in the creation of a super-state relentlessly exploiting the individual.

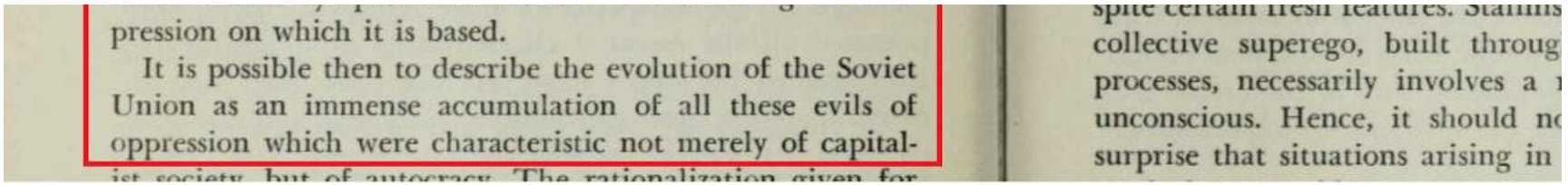
As a result of a process of thorough identification, the new rulers have taken over the methods and ideals of the Russian tyrants of the old past and under the disguise of sublime ideals made them acceptable not only to the vast masses of their own people but even to followers and sympathizers all over the world. Anxiety and frustration of the post-war world superimposed on the inherent weaknesses of our social structure have created in the masses a deep need for ideals backed by material power. This collective longing invests the Soviet system with an aura of salvation which makes sympathizers overlook the suffering and de-

wonder at this tragic paradox of h
better understanding of the Rus
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replaced rapidly the original ideals
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ideal which superseded the old one
to surrender their desire for pers
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achievement in the present and un
in some remote future.

Certain situations in psychologi


pression on which it is based.

It is possible then to describe the evolution of the Soviet Union as an immense accumulation of all these evils of oppression which were characteristic not merely of capital-

collective superego, built throug
processes, necessarily involves a
unconscious. Hence, it should n
surprise that situations arising in

Dr Gustav Bychowski (1895-1972), *Dictators and disciples* (1948), dedicated to his only son, killed 22 May 19

"Controlling escalation is really an exercise in deterrence, which means providing effective disincentives to unwanted enemy actions. Contrary to widely endorsed opinion, the use or threat of nuclear weapons in tactical operations seems at least as likely to check [*as Hiroshima and Nagasaki*] as to promote the expansion of hostilities [**providing we are not in a situation of Russian biased arms control and disarmament whereby we no tactical weapons while the enemy has over 2000 neutron bombs**]." - **Bernard Brodie, pvi of "Escalation and the nuclear option", RAND Corp memo RM-5444-PR, June 1965**.



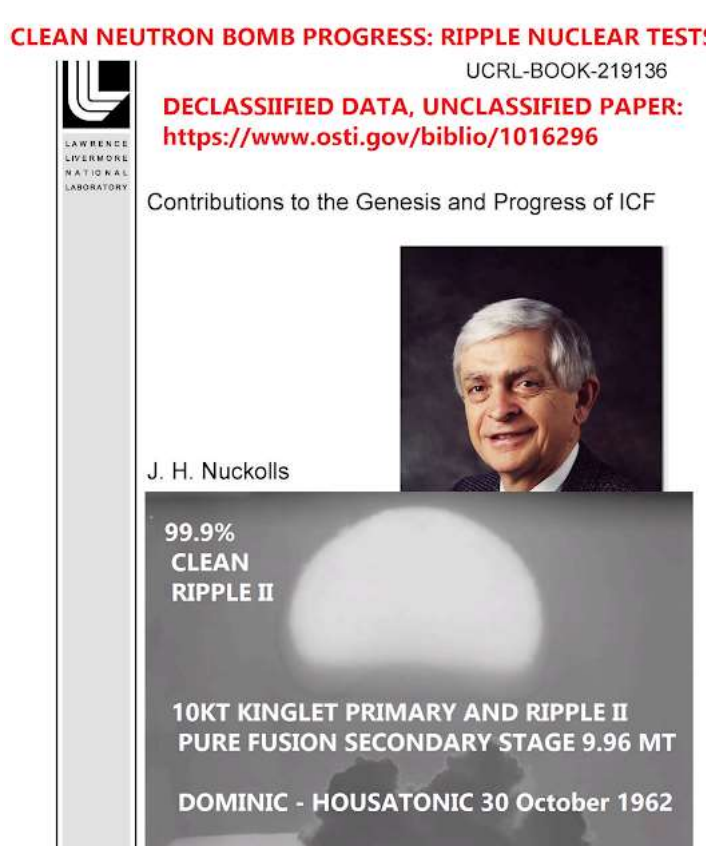


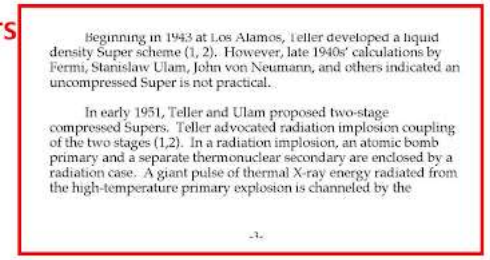




Zelensky meets with Putin in Paris in Dec 2019. SOURCE: Ian Langsdon AFPGetty Images

Flash update (27 May 2023): Russian TV discussion of bombing Alaska to try to de-escalate fascist involvment in Ukraine, **click here (link to twigger account nukegate which we set up to boycott lying propaganda from mainstream BBC/SKY/ITV etc Russian dogma).** ***More nuclear warnings IN RUSSIAN LANGUAGE TO INURE (INURE = "ACCUSTOM TO SOMETHING UNPLEASANT") RUSSIAN PEOPLE IN NEED FOR STARTING ww3 when all their Stalinist nuke shelters have been 100% restocked with water, canned food and fresh geiger counter batteries. NOT WHAT ALL THE CHARLATAN LYING BIGOTS IN WHAT IS POPULARLY CALLED B.B.C. AKA BRITISH COLD COMMIES ENGLISH PROPAGANDA "BLUFF". NO MORE SO THAT DR GOEBBELS THREATS TO MURDER JEWS WERE A BLUFF IN 1930s YOU QUACK MASS MEDIA FRAUDS. WE NEED CREDIBLE DETERRENCE AND DEFENCE NOW INSTEAD OF GAMBLING ON YOUR LIES. YOU ARMS CONTROLLING DISARMAMENT LIARS SAID PUTIN WAS BLUFFING LAST YEAR WHEN HE MASSED TROOPS ON UKRAINE BORDER FOR THE INVASION AND WAR. YOU WERE LYING. You know this, we know, and you know we know! Please refer to Nukegate a/c on twitter for further sad news as this 17 year old technology blogger site is finished (it has to be updated directly in html, not plain english, with mark up for new para, bold, close para, italics, etc, leading to endless errors and making it almost impossible to correct and update!)***

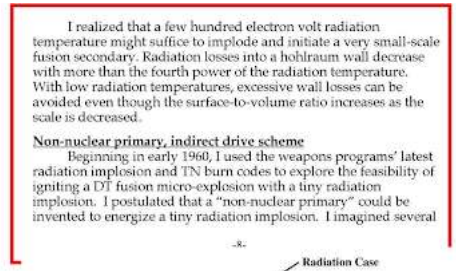




Beginning in 1943 at Los Alamos, Teller developed a liquid density Super scheme (1, 2). However, late 1940s' calculations by Fermi, Stanislaw Ulam, John von Neumann, and others indicated an uncompressed Super is not practical.

In early 1951, Teller and Ulam proposed two-stage compressed Supers. Teller advocated radiation implosion coupling of the two stages (1,2). In a radiation implosion, an atomic bomb primary and a separate thermonuclear secondary are enclosed by a radiation case. A giant pulse of thermal X-ray energy radiated from the high-temperature primary explosion is channeled by the

-1-



I realized that a few hundred electron volt radiation temperature might suffice to implode and initiate a very small-scale fusion secondary. Radiation losses into a hohlraum wall decrease with more than the fourth power of the radiation temperature. With low radiation temperatures, excessive wall losses can be avoided even though the surface-to-volume ratio increases as the scale is decreased.

Non-nuclear primary, indirect drive scheme

Beginning in early 1960, I used the weapons programs' latest radiation implosion and TN burn codes to explore the feasibility of igniting a DT fusion micro-explosion with a tiny radiation implosion. I postulated that a "non-nuclear primary" could be invented to energize a tiny radiation implosion. I imagined several

-8-

radiation case to implode the secondary. The implosion enables efficient TN burn by reducing the fusion burn time relative to the inertial confinement time and the radiative cooling time.[1]

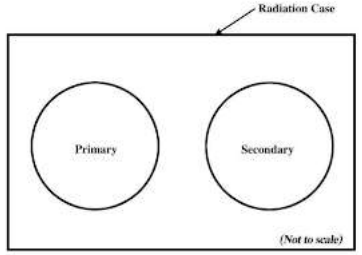
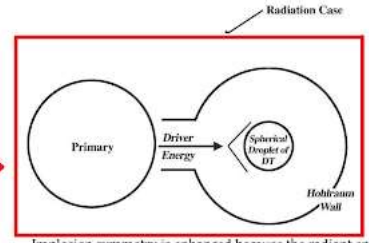


Figure 1. Teller's Radiation Implosion H–Bomb Scheme

[1] For example, a spherical implosion increases the specific burn rate faster than the inertial confinement time decreases. Specific burn rate is proportional to density, which is inversely proportional to the cube of the radius. Inertial confinement time is proportional to the radius. At constant temperature, total burn-up increases with rate x time, which is inversely proportional to the square of the radius.

-4-

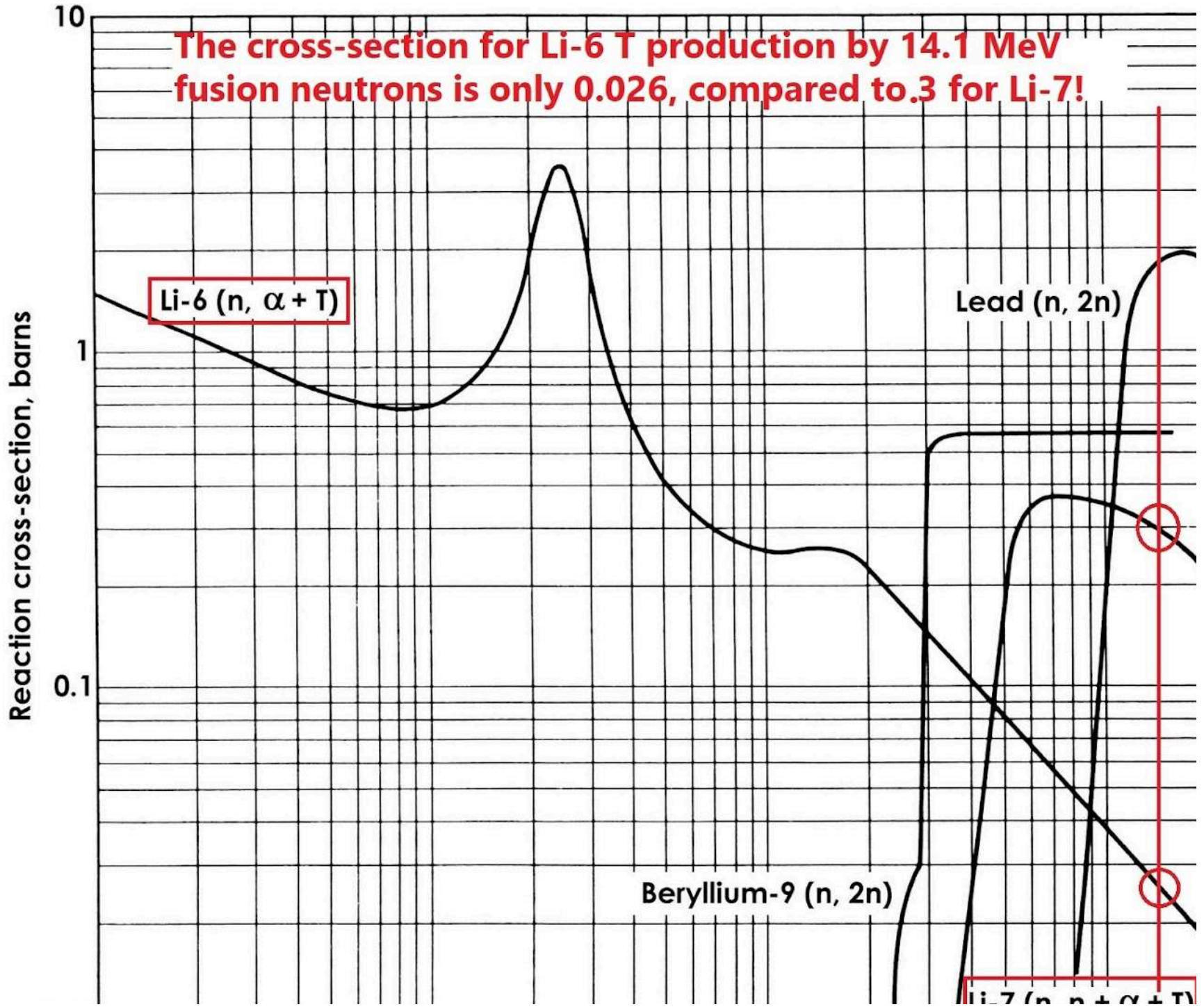


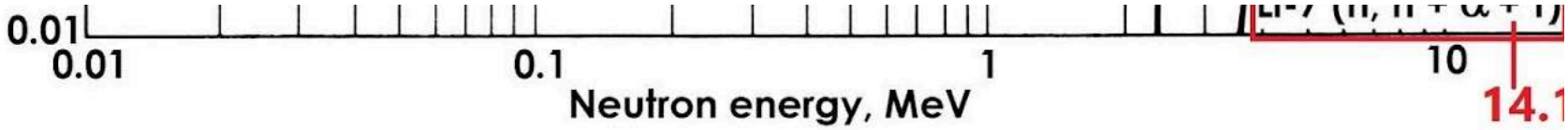
Implosion symmetry is enhanced because the radiant energy absorbed in a thin layer of the high Z walls of the hohlraum is efficiently re-radiated multiple times and has a velocity a thousand times larger than the implosion velocity of a fusion capsule. Energy radiates from hot areas to cooler areas, rapidly equalizing temperatures.

Growth rates of fluid instabilities are reduced because kilovolt range thermal radiation from a few hundred eV temperature black body rapidly ablates the unstable interface in low atomic weight materials. Density gradients also reduce instability growth rates. In 1960, we understood that favorable density gradients are created, and that radiation transport effects reduce growth rate of fluid instabilities (suggested by Livermore physicist Chuck Leith). But we did not have a quantitative understanding.

Distortions and instabilities generated by energy concentration processes located in the driver are effectively decoupled from the spatially separate secondary implosion when the secondary is energized by black body radiation from the driver-heated hohlraum walls. Consequently, radiation coupled drivers and fusion capsules may both be operated near their stability limits to achieve maximum performance.

ABOVE: **Nuckolls has a freely available declassified data filled book on 99.9% CLEAN neutron bomb design (e.g. John Nuckolls on 30 October 1962 tested a 9.96-megaton bomb isentropically and isotropically ignited using sub kev x-ray spectrum from a 10 kt Kinglet primary stage, delivered via foam baffle control in a specially shaped pulse history on to a pusherless D+T sparked Li6D shell Ripple II secondary stage, resulting in a 99.9% fusion, 0.1% fission detonation reported openly in the New York Times that very day!). The Ripple II nuclear test secret is shown in the graph above:** ***why lithium-7 is actually better in boosted clean secondaries than lithium-6! For 14.1 Mev neutrons from T+D fusion, lithium-7 has a 0.3 barns cross-section, compared to just 0.026 for lithium-6! Plus, it gives ANOTHER neutron UNLIKE lithium-6.*** **This was proved in the successful 9.96 megaton Ripple II secondary stage test (99.9% clean bomb, employing 10 kt boosted Kinglet primary) by John Nuckolls; Dominic Housatonic, on 30 October 1962. More about this Housatonic Ripple II secondary stage physics development, later in this blog post. But first:**


The cross-section for Li-6 T production by 14.1 MeV fusion neutrons is only 0.026, compared to.3 for Li-7!
10
1
0.1
Reaction cross-section, barns
Li-6 (n, α + T)
Lead (n, 2n)
Beryllium-9 (n, 2n)



The Ripple II nuclear test secret: why lithium-7 is actually better in boosted clean secondaries than lithium-6! For 14.1 Mev neutrons from T+D fusion, lithium-7 has a 0.3 barns cross-section, compared to just 0.026 for lithium-6! Plus, it gives ANOTHER neutron UNLIKE lithium-6.

Испытания ядерных зарядов

TEST DATE PLACE KILOTONS

RUSSIAN DEVELOPMENT OF CLEANER LOW YIELD TACTICAL NUCLEAR WEAPONS / PNEs

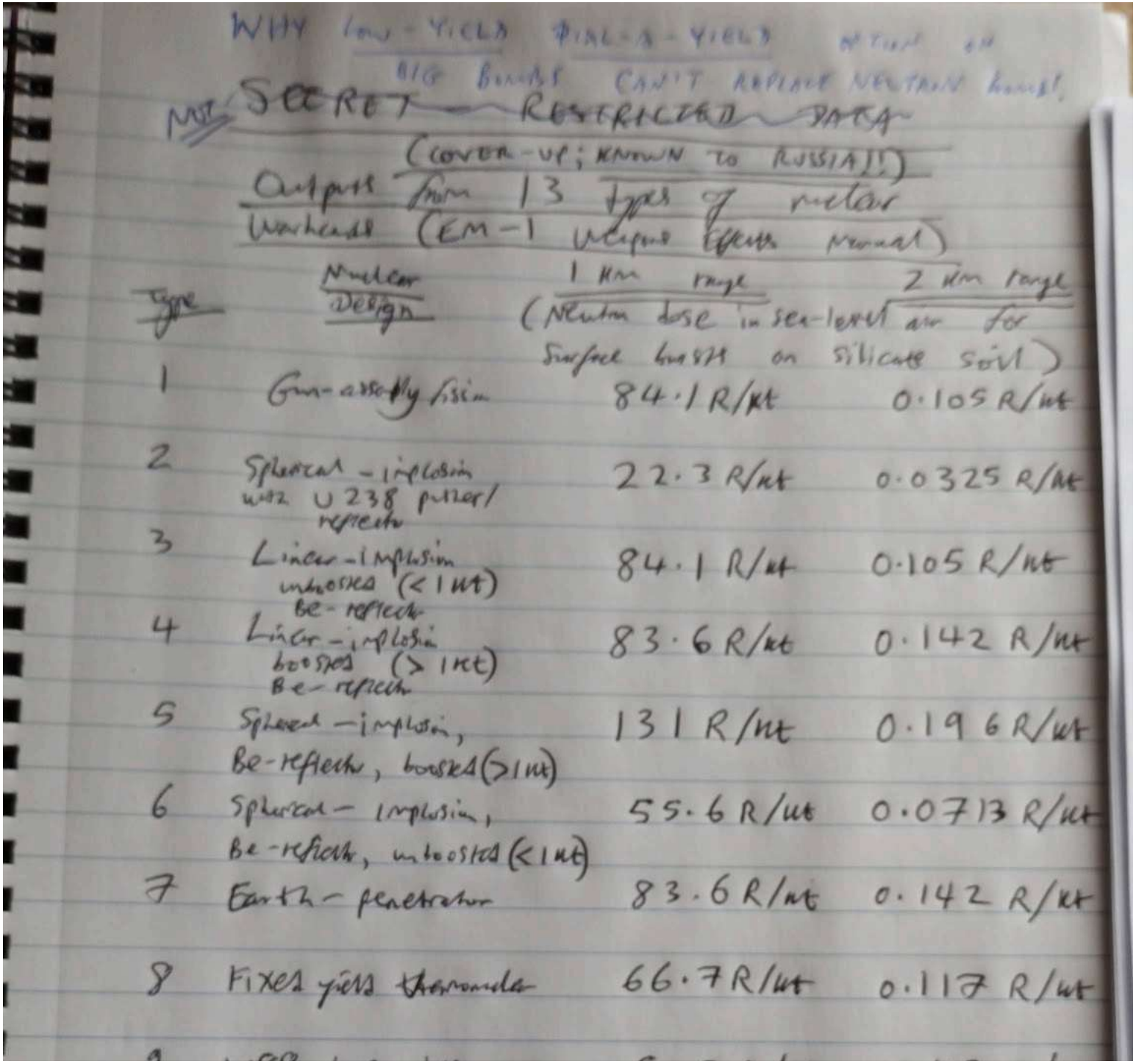
№ по каталогу	Число, месяц, год	Место проведения испытаний	Энерговы-деление, кт ТЭ	Примечание
245	13.02.1966	СИП шт.Е-1	125	Испытание заряда с термоядерным блоком, содержащим дейтерий под большим давлением
280	07.01.1968	СИП шт.810	7.5	Физический опыт для определения минимального количества дейтерия, которое может устойчиво взрываться.
294	09.11.1968	СИП шт.606	4	С 1967 по 1970 гг. испытывался заряд с термоядерным блоком, дающим минимум наведенной активности. Всего проведено 8 таких опытов.
296	18.12.1968	СИП шт.508	8.9	
299	13.04.1969	СИП шт.24П	0,001-20	
302	04.07.1969	СИП шт.710	15	
333	22.03.1971	СИП шт.510П	67	
357	28.03.1972	СИП шт.191	6	
377	10.12.1972	СИП скв.1204	140	Испытание особо “чистого” заряда с высоким коэффициентом термоядерности (около 1%)
382	23.07.1973	СИП скв.1066	212	
400	31.05.1974	СИП скв.1207	71	
422	08.06.1975	СИП шт.165	32	
616	18.08.1983	СИПНЗ шт.А-40	0,001-20	
658	28.12.1984	СИП скв.1353	0,001-20	

PURE DEUTERIUM GAS UNDER HIGH PRESSURE

TEST OF MINIMUM YIELD FOR PURE DEUTERIUM FUSION CHARGE BURN

EXAMPLES OF NUCLEAR TESTS FOR DEVELOPMENT OF LOW YIELD CLEAN CHARGE

140 KILOTON TOTAL YIELD CHARGE OF ONLY ~1% FISSION YIELD



WHY low-YIELD FISSION-YIELD NUCLEAR ON BIG BOMBS CAN'T REPLACE NEUTRON bombs!

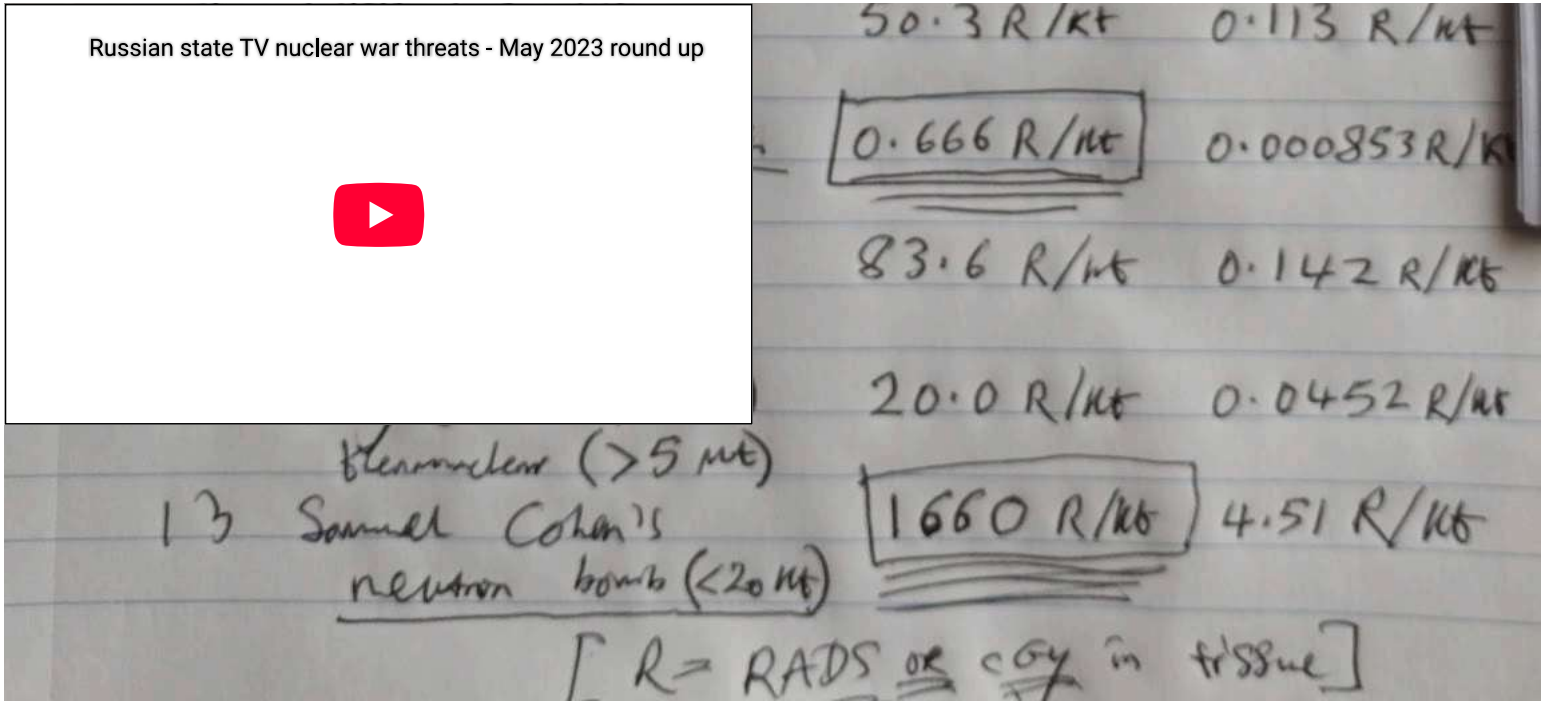
MY SECRET — RESTRICTED DATA

(COVER-UP; KNOWN TO RUSSIA!!)

Outputs from 13 types of nuclear warheads (EM-1 weapons effects manual)

Type	Nuclear Design	1 km range (Neutron dose in sea-level air for surface bursts on silicate soil)	2 km range
1	Gun-assembly fission	84.1 R/kt	0.105 R/kt
2	Spherical-implosion with U238 pusher/reflector	22.3 R/kt	0.0325 R/kt
3	Linear-implosion unboosted (<1 kt) Be-reflector	84.1 R/kt	0.105 R/kt
4	Linear-implosion boosted (>1 kt) Be-reflector	83.6 R/kt	0.142 R/kt
5	Spherical-implosion, Be-reflector, boosted (>1 kt)	131 R/kt	0.196 R/kt
6	Spherical-implosion, Be-reflector, unboosted (<1 kt)	55.6 R/kt	0.0713 R/kt
7	Earth-penetrator	83.6 R/kt	0.142 R/kt
8	Fixed yield thermonuclear	66.7 R/kt	0.117 R/kt

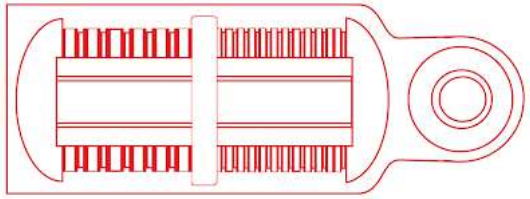
Russian state TV nuclear war threats - May 2023 round up



History is far more predictably deterministic than we would...

ABOVE: **neutron bombs alone produce huge deterrent neutron output at low kiloton yields. e.g. 1660 rads/kt at 1 km from a ground burst type 13 neutron bomb on silicate soil compared to merely 0.666 rads for the type 10 low-yield-option of a B61 or W88 bomb with multiple yield options, called "dial-a-yield" (the data above is calculated from the neutron dose equations in EM-1, 1984**), the reason being that the low yield option just involves an unboosted fission primary stage (which is too weak without boost gas to compress the secondary stage enough to cause that to explode) and the *lithium deuteride in the secondary stage acts as a "neutron sponge" that absorb most of the neutrons from the unboosted primary stage, preventing it from being an efficient source of neutrons,* and **Northrop's declassified EM-1 says in Table 8.10 that Russia and China - *since only Russia and China have neutron bombs since***

NATO's W79's were disarmed in 1992 by loons **- have two types of neutron bomb, a low yield and a high yield version, with yields 1-5 and 5-15 kt, with burst heights of 50-100 and 100-300 m, respectively**. I have also **put up a video explaining that although Putin and friends are sick loons by our Western standards, ideology and national financial issues may mean he feels - like Hitler in 1939 - impelled try to get allies on board (like Hitler did in getting Stalin to agree to jointly invade Poland in September 1939), to start WW3. I hope I'm wrong! But I remember my boy scout's motto "be prepared" and the old Royal Observer Corps motto "forewarned is forearmed" (both these mottos are anathema to the left, proving them to be right). Also, notice that when Hitler and Stalin invaded Poland in September 1939 according to the secret aggression annex to their joint "non-aggression treaty" of August 1939, Hitler believed that he could avoid WW2 by coercing the UK into a "peace pact" due to the fear of London being bombed. By analogy, if Putin and his potential allies do start WW3, they won't admit they are doing it. They simply declare it is another secret special military operation to coerce Western imperialists into peace, not a deliberate triggering of WW3 (Hitler's ploy to curry favour with his people and maybe even what he believed in his own delusional alternative universe, who knows/cares?).**



B61 secondary stage "sausages" contain U235 rings

"3/13/23 NEWSWEEK: "I think that [Putin's] nuclear threat is a real threat," Russian lawmaker Grigory Yavlinsky told Newsweek, echoing Putin's remarks that the warnings are "not a bluff." "It's a real threat. That kind of weapon is such a serious thing...this is not [just] words, this is a real factor, which you have to take into consideration in the current situation. That's it," he said.

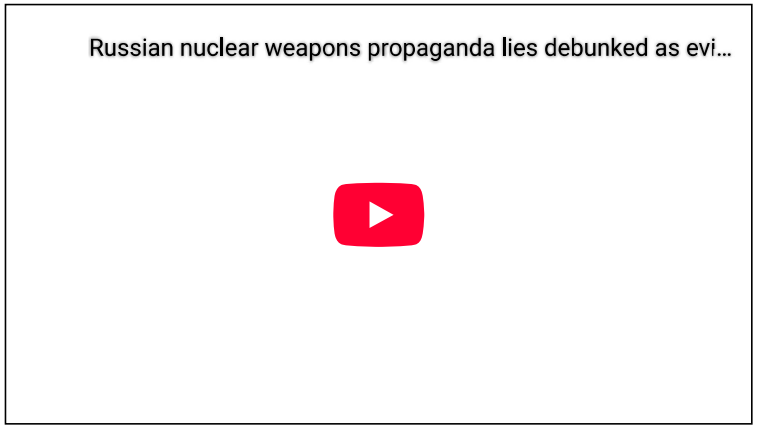




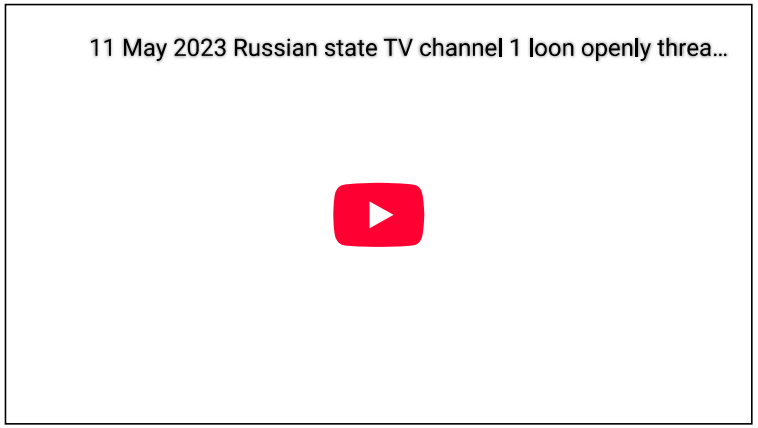
NATO REVIEW: "In 2022, the spectre of nuclear weapons use has returned to centre stage in Europe. From the very beginning of Russia's invasion of Ukraine in February of this year, Russian President Vladimir Putin has brandished his country's nuclear sword in an attempt to compel Ukraine to capitulate to Russia's demands and to deter NATO from intervention. This is the most significant attempt at prolonged, consistent, and conscious nuclear coercion against NATO and its partners in almost forty years. We must therefore reflect on Russia's nuclear coercion with considerable scrutiny. ... With Russia's arsenal of roughly 2,000 tactical nuclear weapons, the escalatory threat that Russia presents below the strategic nuclear level – that is, in using nuclear weapons with smaller yields and shorter ranges – regrettably forces NATO to meet that threat with its own credible option. ... While NATO issued a new Strategic Concept this past June that highlighted the role of nuclear weapons in Allied deterrence, the document was light on specifics, suggesting that Allies would rely on an "appropriate mix" (para. 20) of nuclear and conventional military systems. As Russia's military position continues to deteriorate in the face of heroic Ukrainian resistance and international sanctions, and as Moscow becomes increasingly isolated from the international community, it is not difficult to imagine that Putin will begin to turn more frequently and more aggressively to his nuclear signals in order to extract political concessions from the West and Ukraine. Having been maneuvered onto Thomas Schelling's "slippery slope" of competitive risk-taking, is NATO equipped to respond credibly to Russian threats of nuclear escalation?" (HEY MATE! You guys need plans for more than just "threats"!)



Nuclear weapons have been used again, as threats, and the fascist Russian supporting CND backing media have ironically dismissed them as parlour jokes (unlike the 1962 Cuban missiles crisis, when the USA had a massive superiority for far more credible deterrence than we have today, used by Kennedy in his 22 October TV broadcast to deter the the accidental launching of a single missile from Cuba against any city in the West), so already we are seeing on BBC TV and Russian State TV attempts to deter escalations needed to end the Ukraine war. Russian appeasing or ignorant media is itself being coerced by reality into occasionally allowing hints of realism to enter the public domain, since they'll go under if they keep ignoring it or simply ridiculing it as "unthinkable" and therefore "taboo", inspired by the decades of Moscow's World Peace Council lies (summarised in places like Rhodes' "history" books, *Arsenals of Folly* and *The making of the atomic bomb* which lie about nuclear weapons). Here's what to do to immediately kick the crap out and end the Ukraine war: list the conventional megatonnage in each World War, the nuclear equivalent, bearing in mind that effects like blast and radiation areas don't quite scale up directly in proportion to the total energy release, especially for concrete cities where the concrete absorbs radiation and blast energy efficiently as in 1945 Hiroshima (where there were few concrete buildings compared to modern cities, but enough for Penney to determine shielding factors which Glasstone ignored). For example, 2.5 megatons of bombs were dropped in World War II, their average yield being of the order 0.0000001 megaton (0.1 ton), so if we conservatively ignore the cumulative shielding by concrete buildings in a city and use open desert cube-root distance scaling (two-thirds power for damaged or lethal areas) the number of 1 megaton bombs needed to create the same damage (the so-called "equivalent megatonnage") is obviously equal to $(2{,}500{,}000/0.1)(0.0000001^{2/3}) = 539$ megaton thermonuclear explosions.



This calculation can be repeated for other wars as a homework exercise, then you should repeat it over again for the much smaller *pre-war stockpiles used for "deterrence" before WWI and WWII, and* ***study a recent, honest summary of the cancer data from radiation due to the effects of actual nuclear weapons use in war.*** This alone gives you a bloody realistic basis to quantitatively grasp the mumbo jumbo words used by bigots to weave their history out of whole cloth. Now you are welcome to argue the toss about the details of accurate energy comparisons: for bigger explosions you people get up to 4.7 seconds per mile distance before the blast arrives to duck and cover from blast winds and flying debris, lacking in lower yield conventional surprise bombings where the damaged area is smaller (the average shock front speed is faster near ground zero in bigger explosions, for example taking 40 seconds to arrive 10 miles from 1 megaton, not 47 seconds). So civil defence makes more sense in nuclear war than in conventional war, **although the Vietcong used good tunnel shelters to take over 5,000,000 tons of conventional bombs for victory through survivalism, propaganda in the enemy press, and enemy financial effects since digging holes was cheaper than making dropping bombs, contrary to every taboo ever invented by fascist liars to "disprove civil defence as a joke"**, as indeed did London in withstanding 12,000 tons of small conventional bombs in the Nazi Blitz without surrender, contrary to PM Chamberlain's prewar lying about such bombs inducing defeatism and surrender (it is equivalent to megatons of nuclear weapons yet had the exactly opposite effect to Chamberlain's lies, which is still ignored due to populist lying about WWI UK civil defence by the anti-civil defence marxist liar Angus Calder in his "People's War", where he promotes, hook-line-sinker the 1930s Marxist "Cambridge Scientists Anti-War Group" lies that bomb shelters and gas masks were just a propaganda ploy of no use whatsoever against bombs, **a deception helped by the UK government's deliberate anti-democratic and anti-humanity decison for decades even after WWII - opposed bitterly by my father, Civil Defence Corps instructor John B. Cook - to keep shelter effectiveness data classified "Confidential" in Christopherson's report RC450, "Structural Defence 1945"**.



But it's not just the UK government keeping the public ignorant of key facts to duplicate the Kremlin's propaganda machine, since President Carter said in his farewell address that nuclear weapons can only possibly be used in an all-out totally disarming war spread across a single afternoon, not a couple of nuclear bombs to escalate and end a long war as happened in Hiroshima and Nagasaki, August 1945. But was he a liar, just ignorant, both? How can "democracy" under such secrecy ever force the military to get real with overwhelming nuclear deterrence to end the slaughter of conventional wars, to stop classifying the truth top secret, when it is known to the enemy, and only the delusional mad Marx media and their fashion duped rivals like "Nukemap guy" (and those who believe him), remain faithful to bigoted nonsense. We'll examine in detail the blast and radiation shielding by concrete cities and their effect on reducing still further the utility of larger explosions, later below.

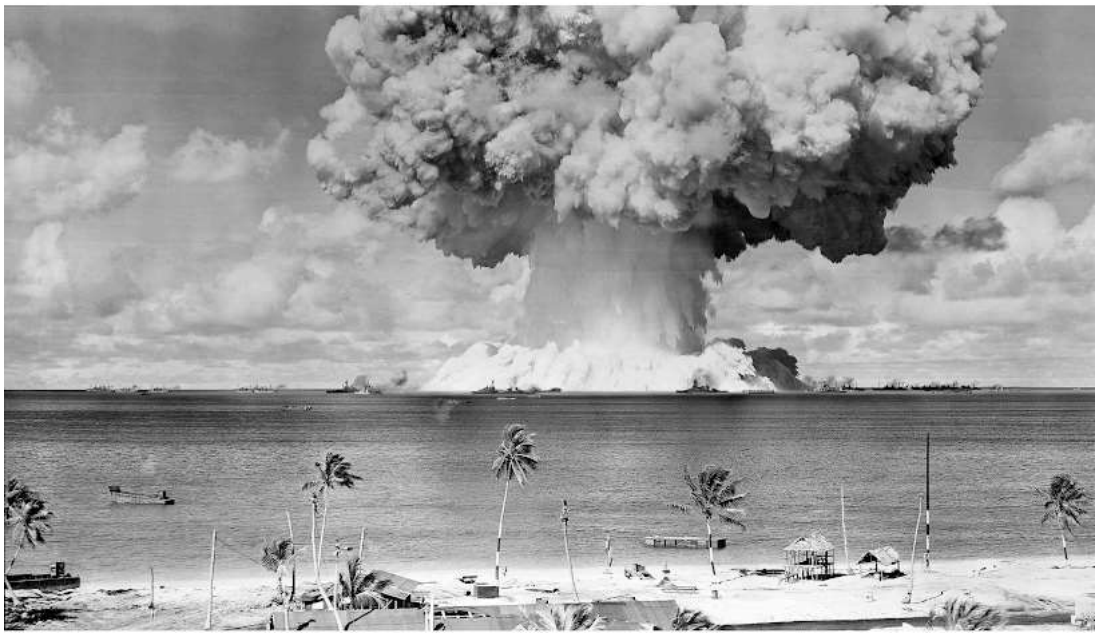


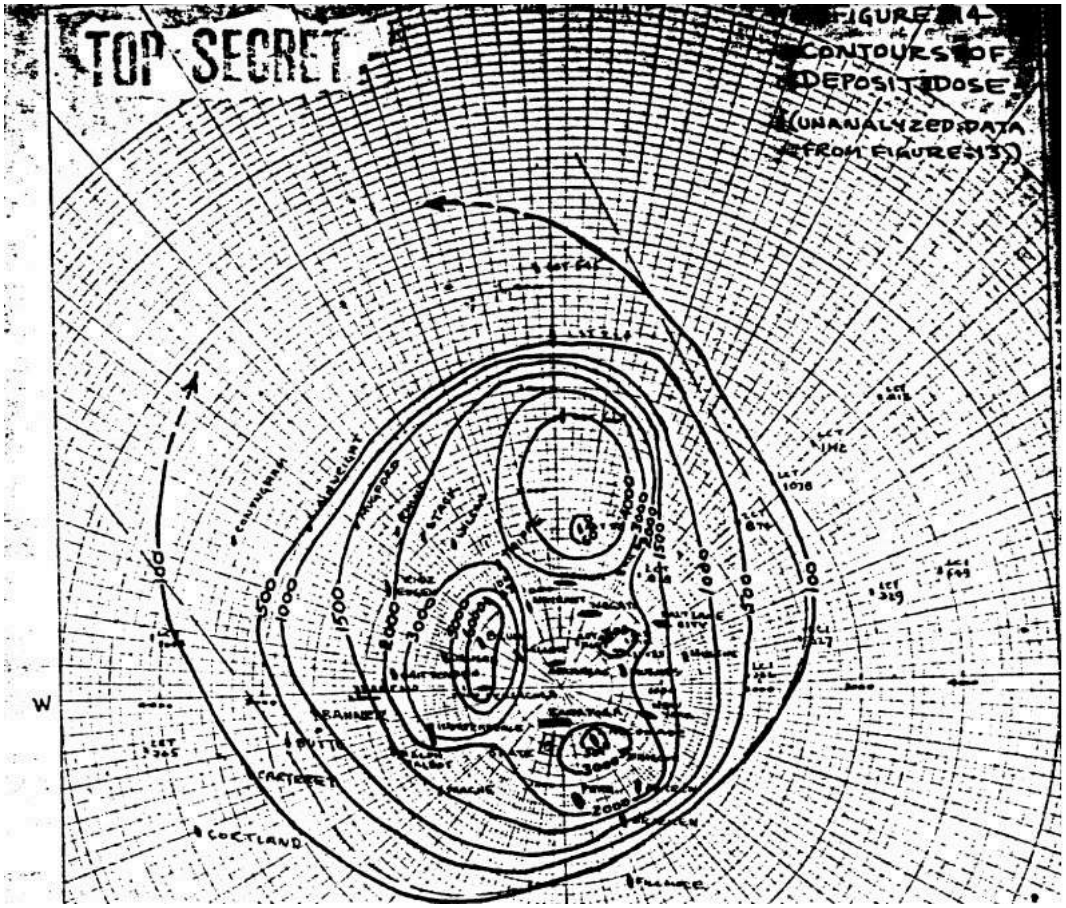












INVESTIGATION OF GAMMA RA
HAZARDS INCIDENT TO
UNDERWATER ATOMIC EXP

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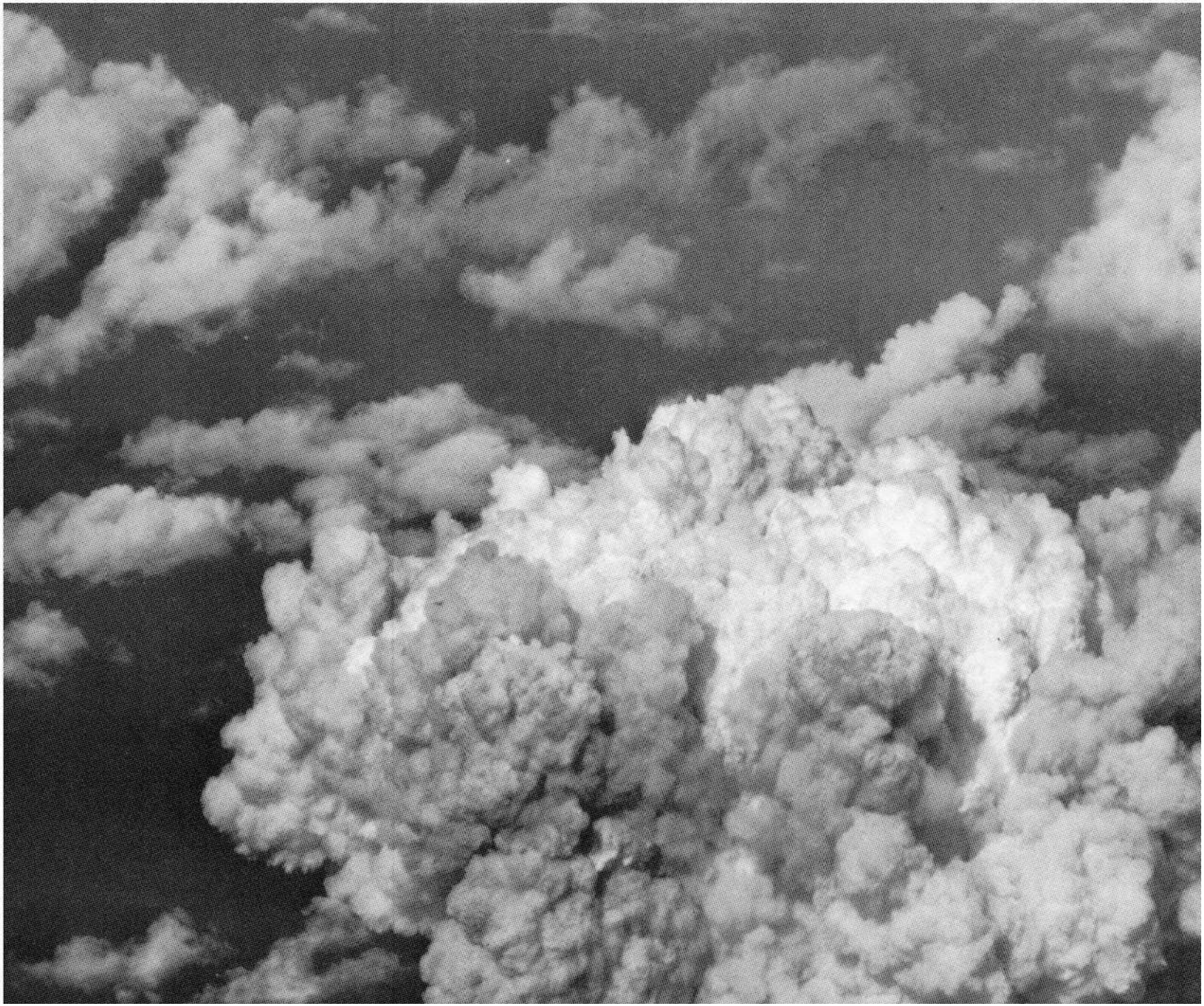
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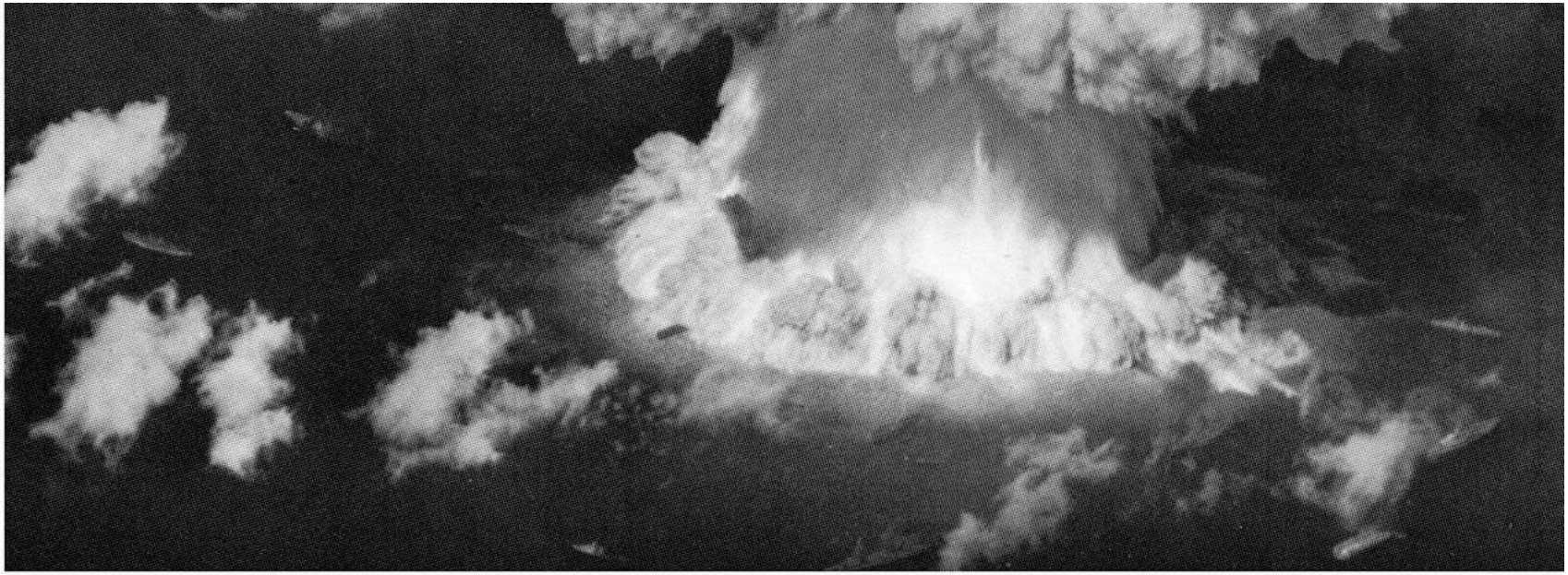
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BUREAU OF SHIPS
NAVY DEPARTMENT
WASHINGTON, D.C.

Top Secret fallout fro
Baker shot (W Strope'





ABOVE: years ago the **Nevada NNSA very kindly and helpfully scanned in the originally "Top Secret" classified report by Walmer E. Strope originally deriving the 25 July 1946 Crossroads-Baker fallout pattern which was later simplified and used in the fallout patterns compendium, DASA-1251 (Baker was 23 kt at a depth of 90 feet in 180 feet of water, within Bikini Lagoon). I put it on Internet Archive for all to use.** However, as with so many declassified reports, what you get is possibly a copy-of-a-copy of what is probably a microfiche print-out from a faded microfilm made about 70 years ago, so you can't see details clearly like the ship names. You can get around this with some effort, since other documents such as Shelton's *Reflections of a Nuclear Weaponeer,* gives maps of the ship arrays in Operation Crossroads. But there is a huge amount of time required to process all the data. Why isn't everything now freely available? What benefit is there to this sort of nonsense? The same secrecy nonsense applies to EMP data:

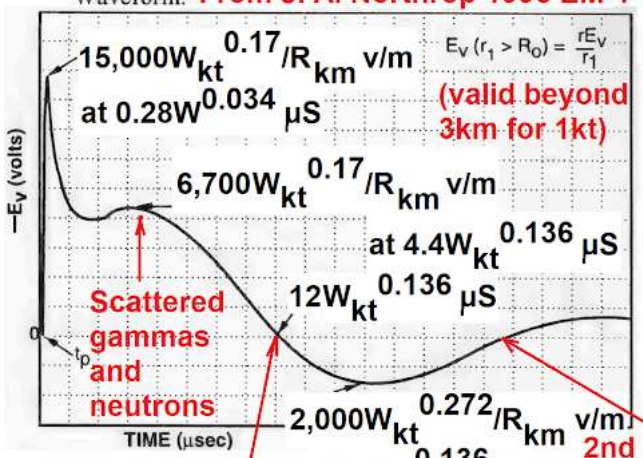




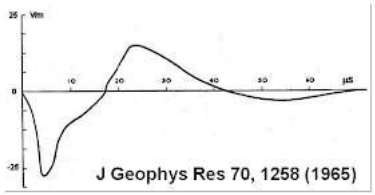
Russian nuclear test film

The Russians were the first to worry about EMP after it was piped into their instruments by 560km of cables at the 1949 RDS-1 nuclear test. The Russian nuclear weaponeer **Kompaneets was first to publish the nuclear EMP in unclassified literature, in "Radio emission from an atomic explosion", dated December 1958: http://jetp.ras.ru/cgi-bin/dn/e_008_06_1076.pdf**. However, **RAND Corp's Gilinsky debunked Kompaneets' peak field approximation in the 4 Jan 1965 Physical Review (v137, ppA50-A55)**. Russian nuclear tests were much **better funded for determining the effects and protective countermeasures than Western tests**. The full details of surface burst EMP have been declassified in **Northop's 1996 EM-1 summary book** and other American and British reports, but as with other effects of nuclear weapons, there is a HUGE amount of attenuation of the EMP by a modern high-rise steel and concrete city:

Figure 10.20. Generic Radiated Ground-Burst EMP Waveform. From J. A. Northrop 1996 EM-1



Eniwetok-Bikini 320 km



In a built-up city, steel framed and concrete buildings rapidly attenuate this EMP!

Left: at 320 km, the HF frequency peak of 0.3 μS has disappeared due to frequency dependent attenuation. The times to cross-over have also increased. At long distances, the times are extended by multipath distortion due the EMP being chanelled from bomb to target by multiple reflections between the conductive ocean surface and the ionosphere, which act as a waveguide in the same way that you can pipe microwaves through a waveguide consisting of a hollow metal tube from source to antenna.

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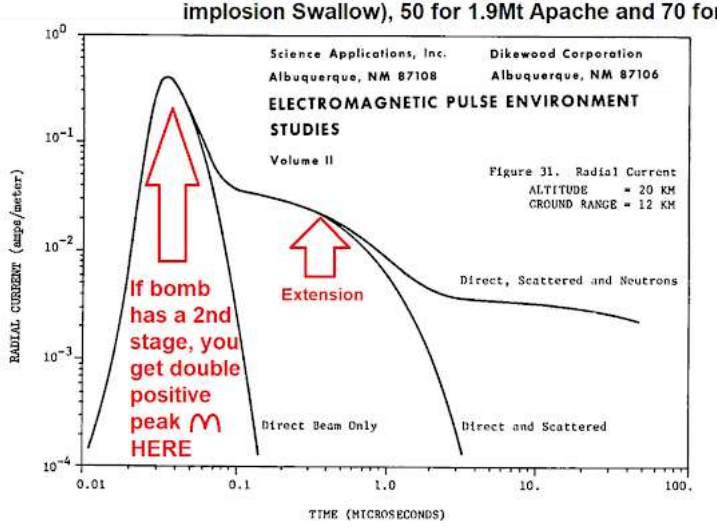
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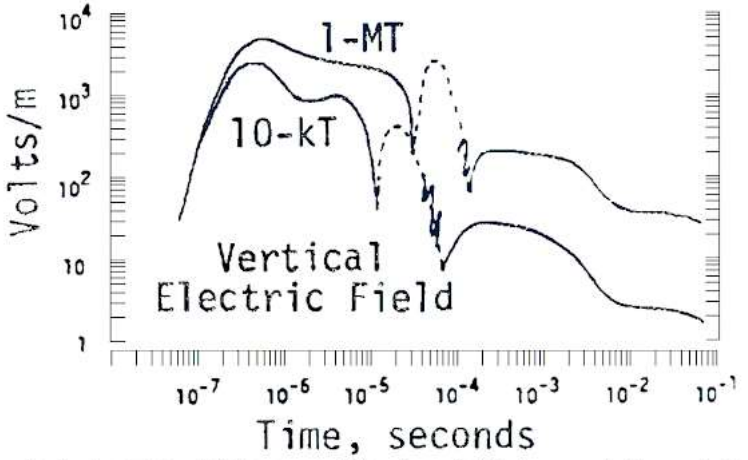
Table 7.2 in Redwing series weapon test report WT-1344 states that 2nd crossover occurred at 29 μS for 1.5kt Kickapoo (linear implosion Swallow), 50 for 1.9Mt Apache and 70 for 4.5Mt Navajo

AFWL-TR-73-286, Vol II



Logarithmic plot of surface burst EMP waveforms:

10 km range from surface bursts (solid lines = negative fields; dashed lines = positive fields)



C. L. Longmire, "History and Physics of EMP," presentation at the Fourth NEM Symposium, Baltimore, Maryland, July 2, 1984.



missiles and rockets

THE WEEKLY OF SPACE SYSTEMS ENGINEERING

Scientists Call for Release of EMP Data

missiles and rockets

THE WEEKLY OF SPACE SYSTEMS ENGINEERING Volume 13, Number 14 September 30, 1963

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THE COVER

Droplets of rapidly melting zirconium explode upon oxidation in tests that are part of a program probing effects of re-entry speeds and air densities in reducing material to tiny particles. Materials melting tests are being conducted at Cornell Aeronautical Lab.

SEPTEMBER 30 HEADLINES

Scientists Urge Declassification of EMP Data 23

Release of EMP D

Goldwater enters joint paper in Congr test ban treaty debate; weapon systems

by Heather M. Davi

TWO U.S. SCIENTISTS have called for a change in military specifications for missile systems and a hardening of existing strategic and tactical weapons to protect them against the electromagnetic effects of nuclear explosions (M/R, Sept. 16, p. 14; Sept. 23, p. 19).

Dr. John A. Kuypers of Stanford University and Dr. V. W. Vodicka, technical director of Joslyn Electronic Systems Division, called for a release of classified information on the electromagnetic pulse (EMP) effects on weapons, command and communication systems. Dr. Kuypers told MISSILES AND ROCKETS that some scientists have recognized the problem since the early nuclear tests were made, but security clamps were put upon these data.

Sen. Barry Goldwater (R-Ariz.) presented the views of the scientists when he entered the draft of unpublished paper written by t the Congressional Record dur nuclear test-ban treaty debate.

The scientists said most significant data are availabl through unclassified technical from the USSR, France and and from those U.S. scientis are not silenced by governmer rity. They added that there is n book which can be used by designers as an information so

The authors charged that "t ent Mil-Spec series is comple adequate to meet the total re requirements of communicatio weapons systems facilities." It d recognize the real integrated problem, they said. When some effects are recognized, but solution is not readily apparer problem is classified and withhe

plosion of electrical conductors, equipment component burnout (especially solid-state devices) and massive insulation failures, and ionization of dielectrics—can be expected in most military facilities that are combined with commercial facilities. From ground zero, they would be affected up to these radii: 1MT fusion, low altitude, 20 miles; 10 MT, 72 miles; and 50 MT, 120 miles. Other scientists predict these effects may reach farther (M/R Sept. 9, p. 18).

Fusion effects listed by the sci

Argus effect—An aurora-like anism noted in every high-altitu both U.S. and Soviet, which can a man-made aurora equal to a corded solar flare storm.

Electromagnetic pulse effec affect buried cable in vicinity as aerial facilities. Conductor burr the immediate vicinity and high v passed down the line to remote cal/electronic facilities occur fr sulation breakdown.

ABOVE: still suppressed EMP data published by Senator Goldwater (64 Presidential nominee) in 19 September 1963 Senate Congressional Record exposing EMP damage in Las Vegas from 1951 near surface bursts due to cable coupling. Notice that even as late as 1977, the ill informed rubbish in the Glasstone Effects of nuclear weapons claimed that EMP has no effect outside the 2psi blast radius (roughly the deposition region radius with a few thousand v/m EMP field strength) in surface bursts, when in fact, very intense ~100,000 v/m EMP on the cables close to ground zero is simply piped out to enormous distances by conductors in microseconds (before air blast or ground shock can damage them!), so the limiting damage radius for EMP in such bursts depends on the resistance (ohms per metre) of the cables! It doesn't depend on the EMP field strength at the end of the cable where the damage occurs, any more than you have to have a power station on your doorstep to keep your lights on!

EMP in 19 September 1963 US Congressional Record SENATE

Report submitted by Senator Barry Goldwater duri

Mr. President, I ask unanimous consent that the first 7 pages of the introduction to a paper prepared by Dr. V. W. Vodicka, technical director, Joslyn Electronic Systems Division, and John A. Kuypers, of Stanford University, may be printed in the RECORD following my remarks.

There being no objection, the excerpt was ordered to be printed in the RECORD, as follows:

The immediate electromagnetic effects of an atomic explosion are massive and diverse. These effects can wipe out critical weapons and communications systems in a few seconds time although the same facilities may survive in the so-called conventional part of the attack environment.

There is more to a nuclear explosion than a spectacular visual display, ground and atmospheric shock waves, heat, and atomic radiation. These are only part of the nuclear attack environment.

Some of the electromagnetic effects (viz., Argus) are trans-hemispheric. All are re-

Nuclear electromagnetic effects have been noted since the advent of nuclear explosion testing. Overwhelming verification of their existence and scope has been built up by correlation of shot times (most accurately defined in foreign technical papers) with concurrent working system outages and damages. This correlation effort by the authors began in 1952 with notations of electromagnetic effects in the vicinity (200 mile radius) of the test grounds.

In August 1958 the Argus test series in the South Atlantic Ocean caused dramatic and unpredicted transhemispheric electromagnetic disturbances. A low-yield shot at 200 miles altitude caused the undersea coaxial cable across the North Atlantic Ocean to intermittently fail in function. Correlated outages existed in critical defense systems at this time but were not published due to classification of facilities logs.

Soviet instrumentation of our test efforts defined our shot times to the second. The times were published in unclassified technical papers.

Many tactical and strategic weapons, communications, and command systems are not hard electrically. These systems as now implemented may not survive electronically to the same degree that they will survive mechanically. Catastrophic electrical and electronic failures can be expected in most mili-

tary facilities which are combined with commercial facilities as now installed to a radius from ground zero as follows if not properly protected:

	Miles
1 MT fusion, low altitude	20
10 MT fusion, low altitude	72
50 MT fusion, low altitude	120

The catastrophic failures are defined as: Vaporization and explosion of electrical conductors (power distribution and communications), equipment component burn out (especially solid state devices) and massive insulation failures due to both conductor overheating and electrical stress (over voltage) and ionization of dielectric.

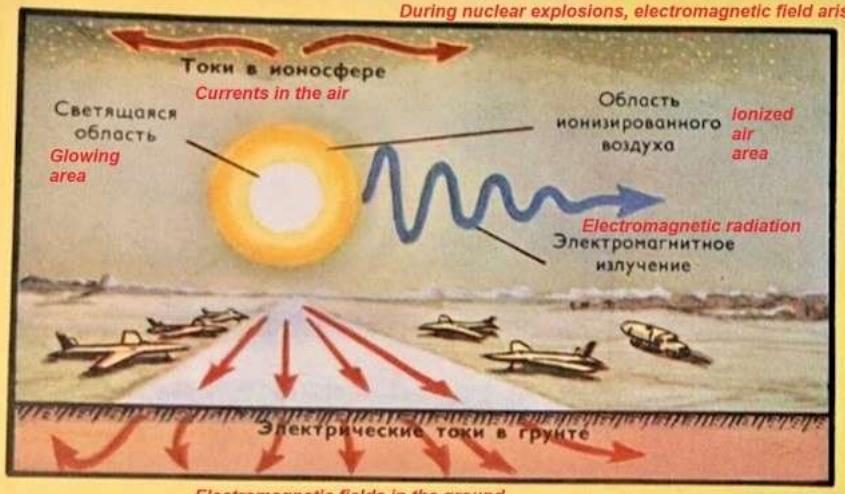
Lesser systems failures can be expected outside of the radii specified above. Both calculations and actual experience show that

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other e

ЭЛЕКТРОМАГНИТНЫЙ ИМПУЛЬС Electromagnetic pulse

ПРИ ЯДЕРНЫХ ВЗРЫВАХ ВОЗНИКАЮТ ЭЛЕКТРОМАГНИТНЫЕ ПОЛЯ, КОТОРЫЕ СОЗДАЮТ ИМПУЛЬСНЫЕ ЭЛЕКТРИЧЕСКИЕ ТОКИ И НАПРЯ
И НАЗЕМНЫХ ПРОВОДНЫХ И КАБЕЛЬНЫХ ЛИНИЯХ, В АНТЕННАХ РАДИОСТАНЦИЙ, А ТАКЖЕ РАДИОИЗЛУЧЕНИЕ, РАСПРОСТРАНЯЮЩЕЕСЯ Н

During nuclear explosions, electromagnetic field arise, which create pulsed electric currents and voltages on ground-based wire an cable lines, radio antennas, and radiated radio energy spreading far



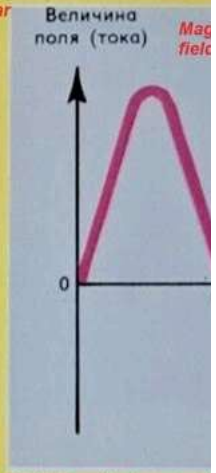
Electromagnetic fields in the ground

Электромагнитное поле и токи в воздухе и грунте возникают в результате образования в зоне взрыва светящейся области и большой области ионизированного воздуха, созданной проникающей радиацией.

Electromagnetic fields and currents in the air and the ground, arise in the ionized air created by the penetrating radiation from the explosion.

Наведенные токи и напряжения представляют собой кратковременный импульс, по своим характеристикам близкий к импульсу, вызванному молниевым разрядом. Его длительность составляет несколько миллисекунд.

Induced voltages and currents are in the form of a pulse, similar to lightning, with a duration of several milliseconds.



Within several km of air and ground explosions, overhead power/communications lines experience 10,000 - 100,000 volt induced pul

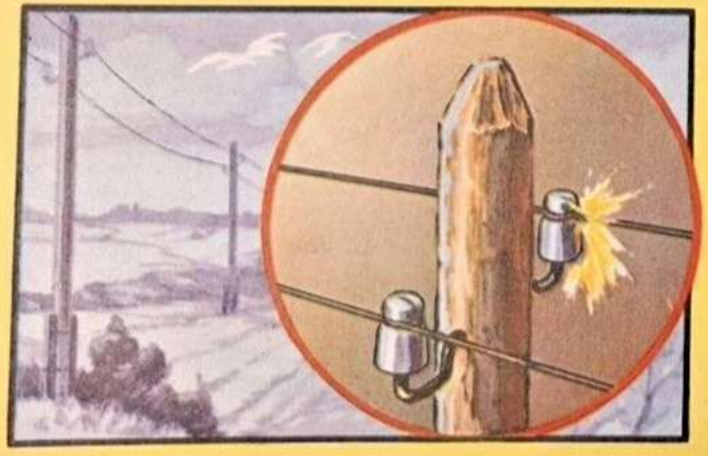
ПРИ НАЗЕМНЫХ И ВОЗДУШНЫХ ВЗРЫВАХ В РАДИУСЕ НЕСКОЛЬКИХ КИЛОМЕТРОВ ОТ ЦЕНТРА (ЭПИЦЕНТРА) ВЗРЫВА ПЕРЕНАПРЯЖЕНИЯ МЕЖДУ ПРОВОДАМИ ВОЗДУШНЫХ ЛИН
И ЗЕМЛЕЙ ДОСТИГАЮТ ДЕСЯТКОВ И СОТЕН ТЫСЯЧ ВОЛЬТ, А МЕЖДУ ЖИЛАМИ ПОДЗЕМНЫХ КАБЕЛЬНЫХ ЛИНИЙ И ОБОЛОЧКОЙ (ЗЕМЛЕЙ) — НЕСКОЛЬКИХ ДЕ
НАВЕДЕННЫЕ ИМПУЛЬСЫ МОГУТ РАСПРОСТРАНЯТЬСЯ ПО ЛИНИЯМ НА БОЛЬШИЕ РАССТОЯНИЯ ОТ МЕСТА ЯДЕРНОГО ВЗРЫВА.

Underground cables receive several tens of thousands of volts induced pulse

ВОЗНИКШИЕ ПРИ ВЗРЫВАХ ПЕРЕНАПРЯЖЕНИЯ СПОСОБНЫ:

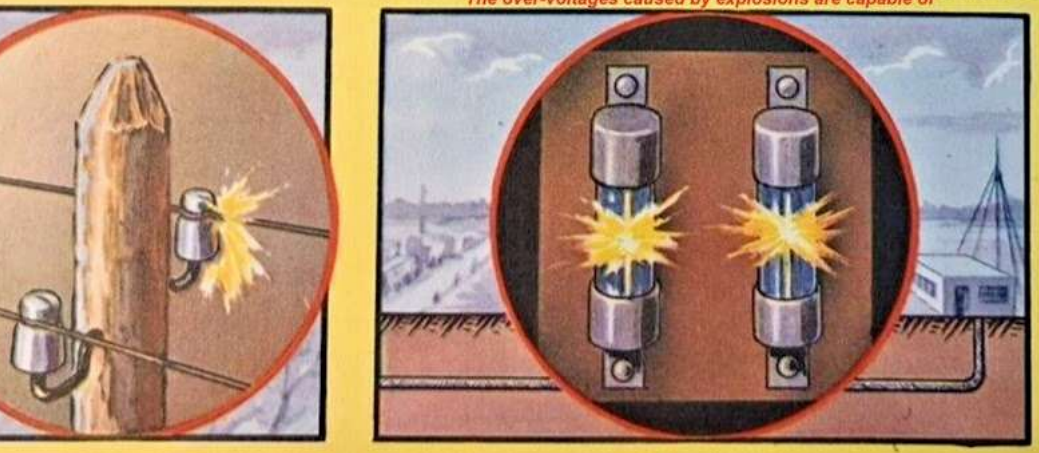
Induced pulse propagate ou

The over-voltages caused by explosions are capable of



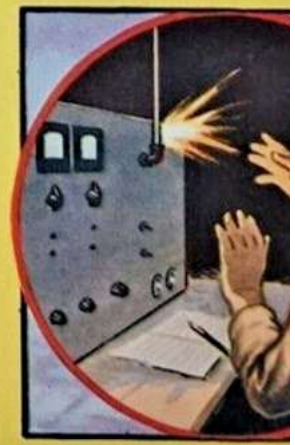
разрушать изоляцию электро- и радиотехнических устройств;

Destroying the insulation of electrical and radio equipment



вызывать перегорание элементов электро- и радиоаппаратуры или массовое срабатывание средств защиты;

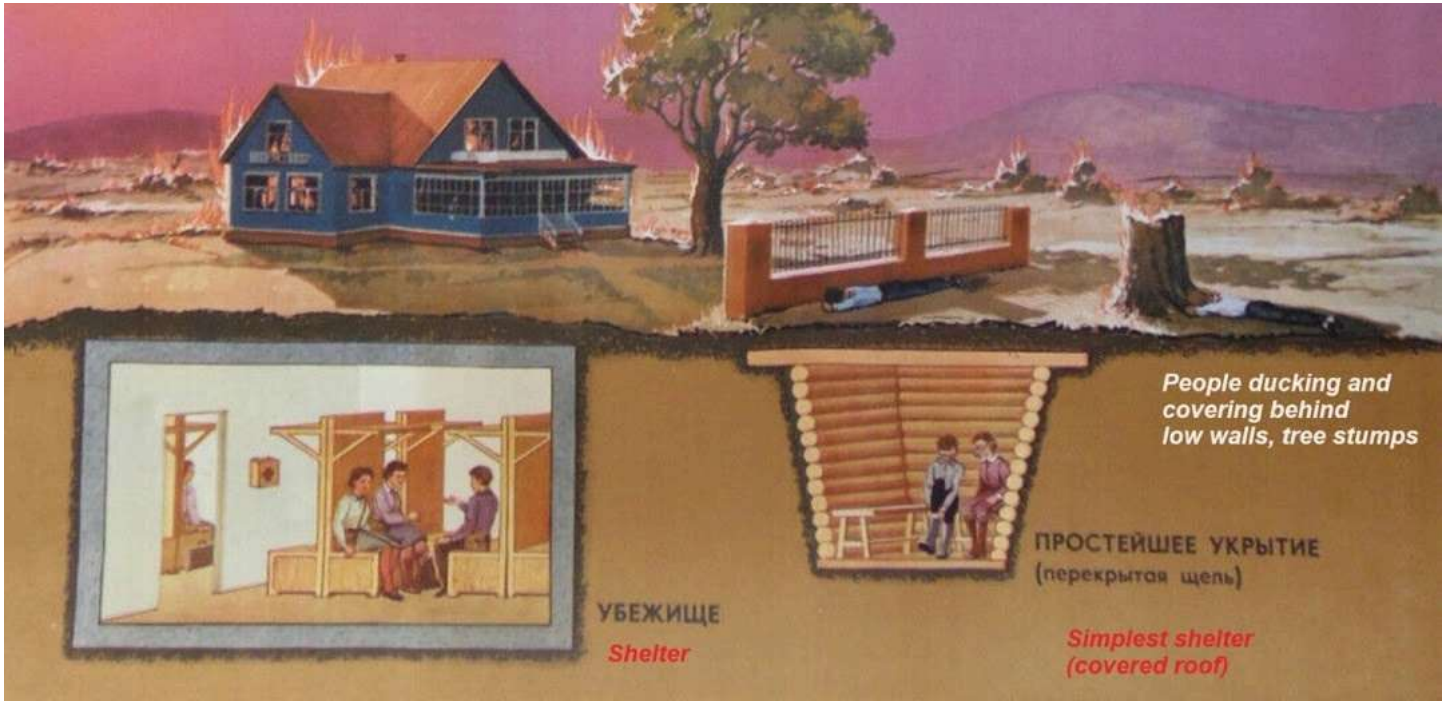
Burning out electrical and radio equipment components/safety devices.



поражать о

Injuring technica


ПОРАЖАЮЩИЕ ФАКТОРЫ ЯДЕРНОГО ВЗРЫВА
Damaging factors of a nuclear explosion
УДАРНАЯ ВОЛНА,
СРЕДСТВА ЗАЩИТЫ ОТ НЕЕ
BLAST WAVE
Means to protect against it
УБЕЖИЩЕ
ПЕРЕКРЫТАЯ ЩЕЛЬ
ОТКРЫТАЯ ЩЕЛЬ
0 – 1/10 R
1/2 R
2/3 R
R (радиус) безопасного удаления от ядерного взрыва
Survival from GZ to R/10 radius
Underground concrete shelter
Survival at R/2 radius
Covered, shored trench
Survival at R radius
Open trench
СВЕТОВОЕ ИЗЛУЧЕНИЕ,
СРЕДСТВА ЗАЩИТЫ ОТ НЕГО
THERMAL RADIATION
Means of protection against it
(shadows by any intervening object)


People ducking and
covering behind
low walls, tree stumps
ПРОСТЕЙШЕЕ УКРЫТИЕ
(перекрытая щель)
Simplest shelter
(covered roof)
УБЕЖИЩЕ
Shelter

ПОРАЖАЮЩИЕ ФАКТОРЫ ЯДЕРНОГО ВЗРЫВА

Damaging effects of a nuclear explosion

Penetrating radiation - neutrons and gamma rays, are emitted during a nuclear explosion

Проникающая радиация — это поток гамма-лучей и нейтронов, испускаемых в момент ядерного взрыва.

Поражающее действие проникающей радиации на людей вызывается облучением, которое оказывает вредное биологическое действие на клетки организма, в результате чего человек заболевает так называемой лучевой болезнью.

В зависимости от дозы облучения (которая измеряется в рентгенах) различают три степени лучевой болезни: первую (легкую), вторую (среднюю) и третью (тяжелую).

При лучевой болезни первой степени скрытый период продолжается две-три недели, после чего появляется недомогание, общая слабость, тошнота, головокружение, повышается температура.

При лучевой болезни второй степени скрытый период длится около недели, признаки заболевания — как и при лучевой болезни первой степени, но в более ярко выраженной форме. При активном лечении выздоровление наступает через 1,5—2 месяца.

Скрытый период при лучевой болезни третьей степени сокращается до нескольких часов. Болезнь протекает более интенсивно. При активном лечении выздоровление наступает через несколько месяцев.

The first symptom of a mild (1st degree) radiation dose is brief nausea and sickness, followed by a latent period of no symptoms lasting 2-3 weeks, then another period of malaise/discomfort including symptoms of fever [due to low blood counts of radiation-susceptible short-lived white blood cells of the immune system, blood clotting platelets, etc.]. For moderately severe (2nd degree) doses, the latent period of no effects is reduced to just 1 week, and recovery with treatment takes 1.5-2 months. For severe (3rd degree) radiation doses, the latent period is reduced to a few hours.

ЕСЛИ ДОЗЫ ОБЛУЧЕНИЯ ПРЕВЫШАЮТ ДОПУСТИМЫЕ, ЧЕЛОВЕК ЗАБОЛЕВАЕТ ЛУЧЕВОЙ БОЛЕЗНЬЮ!

If the radiation dose exceeds permissible limits, the person becomes ill with radiation sickness

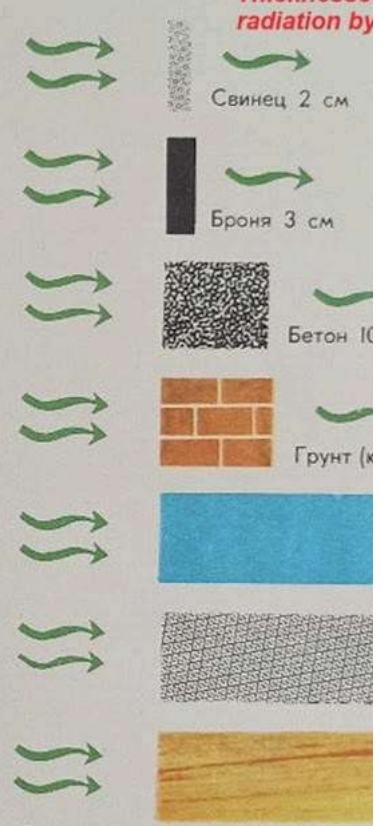
СТЕПЕНИ ЛУЧЕВОЙ БОЛЕЗНИ

100-200 р — лучевая болезнь I степени

Ослабление интенсивности гамма-излучения характеризуется слоем половинного ослабления. Эт
нии которого интенсивность гамма-лучей уменьшается в два раза.

Thicknesse radiation by

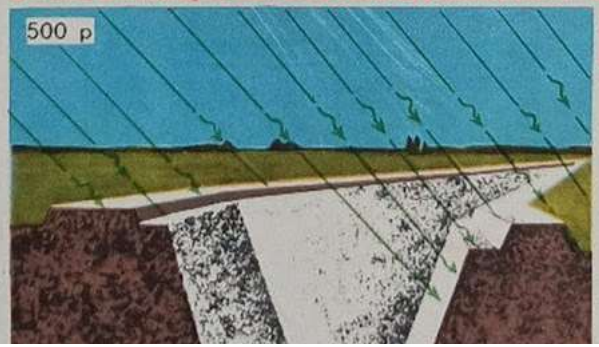




Слой половинного ослабления неко

За преградами доза радиации значительно меньше, чем на открытой местности. Убежища практичес

Behind barriers, radiation doses are much less. Shelters provide almost complete prot



500 R reduced to 50-200R in open trench

Открытые щели ослабляют радиацию в 3—10 раз

Open slit trenches give a 3-10 fold shielding of gamma radiation

Перекрытые щели ослабляют радиацию



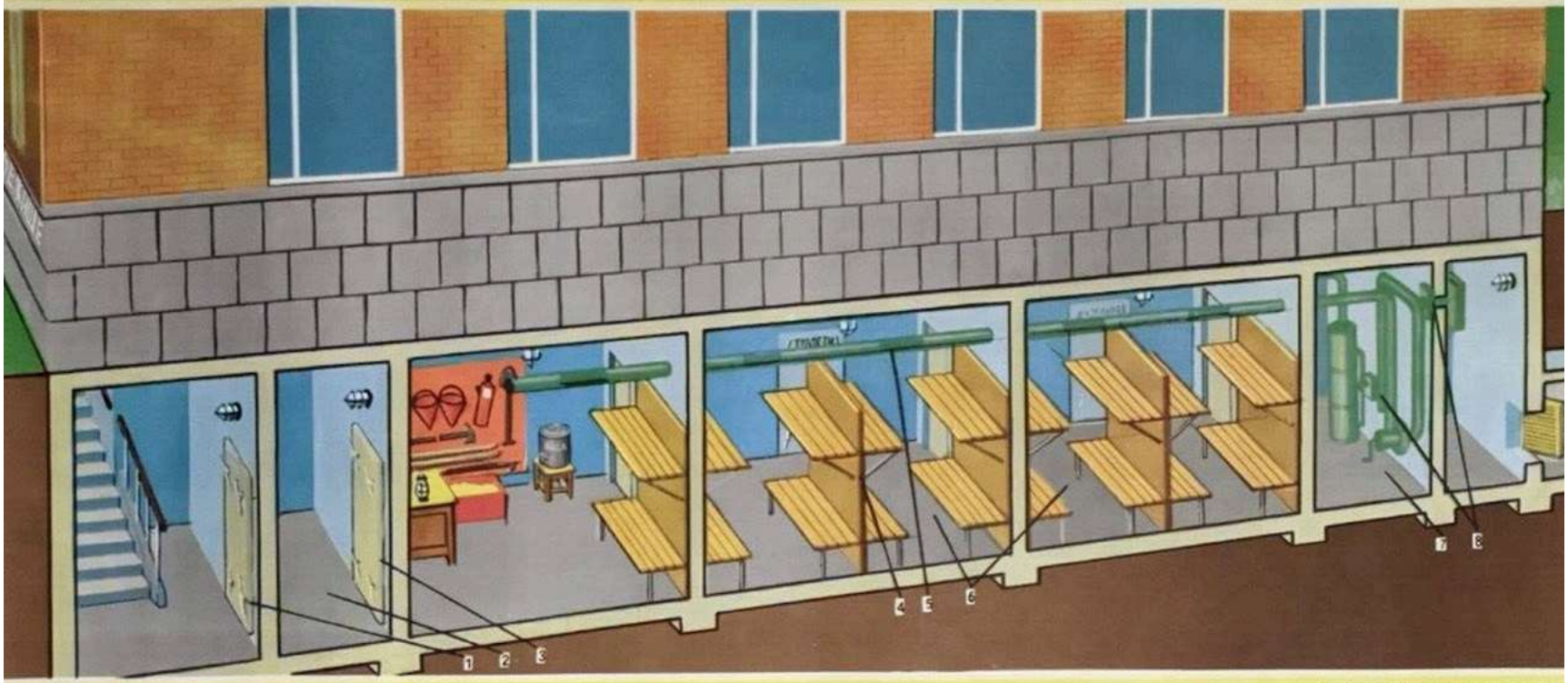

100-200 R - mild 1st degree sickness
200-300 р — лучевая болезнь 2 степени
200-300 R - moderate or 2nd degree
300-450 р— лучевая болезнь 3 степени
300-450 R - severe or 3rd degree
200 р
50 р
в 25—50 раз
Covered trench gives
25-50 fold reduction
(i.e. 500 R to 10-20 R)


ЗАЩИТНЫЕ СООРУЖЕНИЯ ГО
1986-7 Rus
basement s
Противорадиационное укрытие — сооружение, обеспечивающее защиту людей от ионизирующих излучений при радиоактивном заражении местности и светового потока, частично от ударной волны и проникающей радиации (в том числе и от нейтронного потока), а также от непосредственного попадания на кожу и одежду людей радиоактивных, отравляющих веществ и бактериальных средств
Concrete slabs covered shelter
ПРОТИВОРАДИАЦИОННОЕ УКРЫТИЕ ИЗ ЛЕСОМАТЕРИАЛА С ПЕРЕКРЫТИЕМ ИЗ ЖЕЛЕЗОБЕТОННЫХ ПЛИТ
ПОГРЕБ, ПРИСПОСОБЛЕННЫЙ ПОД УКРЫТИЕ
Farm cellar shelter
Оконные ставни
Насыпь грунта на перекрытии
Дополнительная кирпичная кладка
Приточный короб
Стойка усиления
ПОДВАЛЬНОЕ ПОМЕ
УСТРОЙСТВО И ВНУТРЕННЕЕ ОБОРУДОВАНИЕ УБЕЖИЩА
Убежище — сооружение герметического типа, предназначенное для защиты укрывающихся в них людей от всех поражающих факторов ядерного взрыва, отравляющих веществ, бактериальных средств, а также от высоких температур и вредных газов, образующихся при пожарах
(1) & (3): DOUBLE BLAST DOORS
FOR HIGH LEVEL OF BLAST PROTECTION
DOUBLE BL
BASEMENT

ОБЩЕЕ УСТРОЙСТВО УБЕЖИЩ

УБЕЖИЩА ЗАЩИЩАЮТ ЛЮДЕЙ ОТ ВОЗДЕЙСТВИЯ ЯДЕРНОГО ОРУЖИЯ, ОТРАВЛЯЮЩИХ ВЕЩЕСТВ И БАКТЕРИАЛЬНЫХ СР

ВНУТРЕННЕЕ ОБОРУДОВАНИЕ ВСТРОЕННОГО УБЕЖИЩА



DOUBLE BLAST DOORS FOR CLOSE-IN HIGH OVERPRESSURES

По сигналу «Воздушная тревога» в убежище (укрытие) сначала размещаются дети и престарелые люди;

индивидуальные средства защиты необходимо держать в постоянной готовности;

общий выход из убежища осуществляется по сигналу «Отбой воздушной тревоги» (без разрешения выходить из убежища запрещается).

Основные помещения строятся из расчета 1,5 м^3

объема и 0,5 м^2 площади на одного укрываемого человека.

Высота помещений должна составлять не менее 2,2 м от пола до низа выступающих конструкций перекрытия.

Места для сидения устраиваются размером 0,45x0,45 м на одного человека и для лежания на верхнем ярусе 0,55x1,8 м. Количество мест для лежания должно быть не менее 20% от общей вместимости убежища.

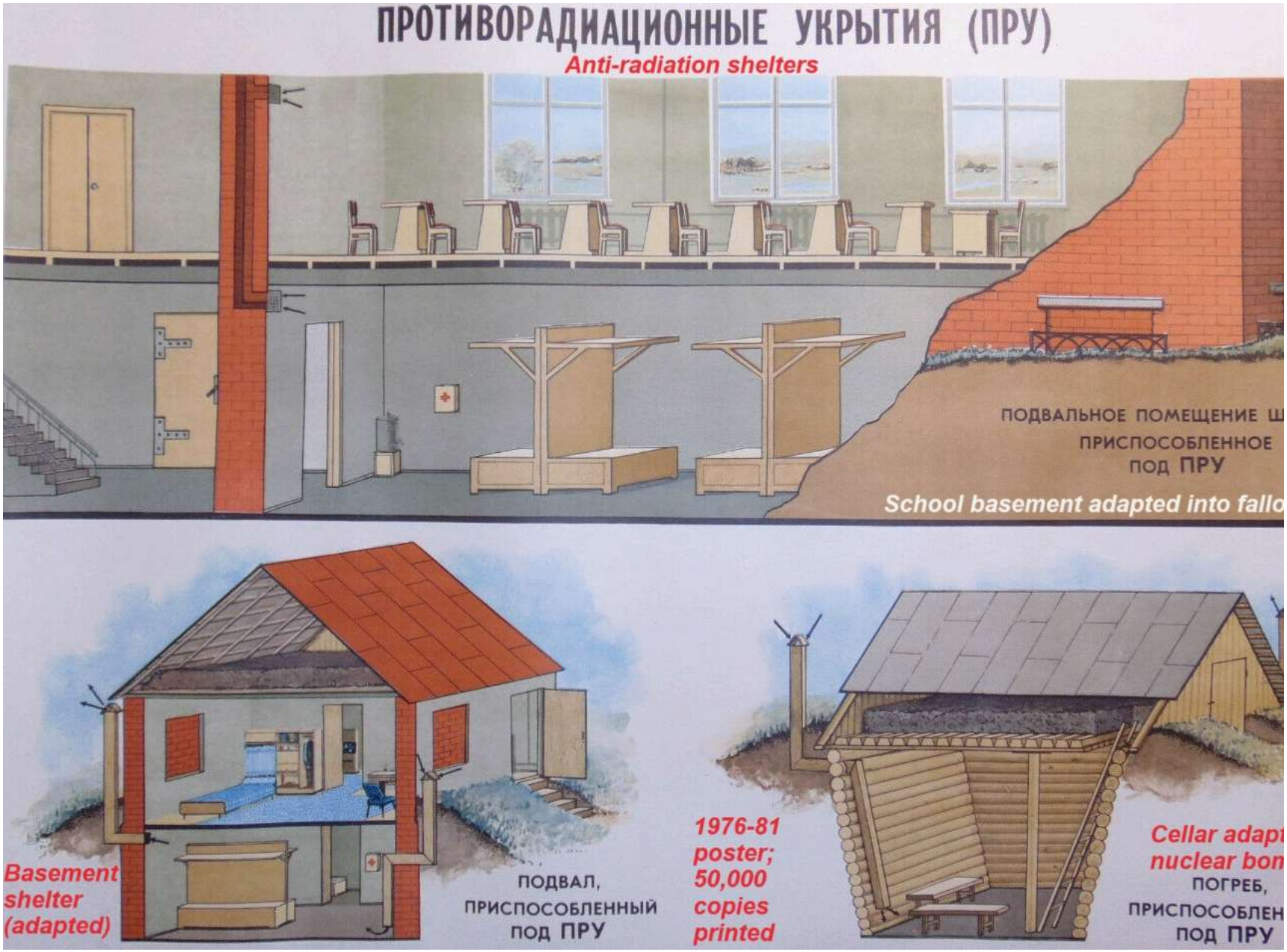
В убежище в противоположных его концах устраивается не менее двух выходов.

Очистка подаваемого воздуха может осуществляться в двух режимах: чистой вентиляции (очистка воздуха от пыли), фильтровентиляции (очистка воздуха от пыли и ОВ).

РАЗМЕЩЕНИЕ ЛЮДЕЙ




Таблицы по гражданской обороне. 5класс
УБЕЖИЩЕ И ПРОСТЕЙШИЕ УКРЫТИЯ
Shelters and the simplest protective structures
1976-1981 Ru
50,000 copies
ТАМБУР
ВОЗДУХОВОД
ОСНОВНЫЕ ПОМЕЩЕНИЯ
ФИЛЬТРОВЕНТИЛЯ
Double doors
Hemetic door
ГЕРМЕТИЧЕСКАЯ ДВЕРЬ
ЗАЩИТНО-ГЕРМЕТИЧЕСКАЯ ДВЕРЬ
Protective hermetic blast door
НАРЫ
Bunks
УСТРОЙСТВО И ВНУТРЕННЕЕ ОБОРУДОВАНИ
The device and built-in equipment of the built-in (base
NOTETHE DOUBLE BLAST DOORS FOR CLOSE-IN BL
Bunks at top (take turns to sleep)
Blast door
РАЗМЕЩЕНИЕ ЛЮДЕЙ В УБЕЖИЩЕ
People in shelter
ОТКРЫТАЯ ЩЕЛЬ
Simplest shelters (open trench)
ПРОСТЕЙШИЕ УКРЫТ


ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ (ПРУ)
Anti-radiation shelters
ПОДВАЛЬНОЕ ПОМЕЩЕНИЕ Ш
ПРИСПОСОБЛЕННОЕ
ПОД ПРУ
School basement adapted into fallo
Basement shelter (adapted)
ПОДВАЛ,
ПРИСПОСОБЛЕННЫЙ
ПОД ПРУ
1976-81 poster; 50,000 copies printed
Cellar adapt nuclear bon
ПОГРЕБ,
ПРИСПОСОБЛЕН
ПОД ПРУ

ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ

(ПРОДОЛЖЕНИЕ)

Население при угрозе нападения противника может своими силами строить из подручных рода укрытия.



Щель

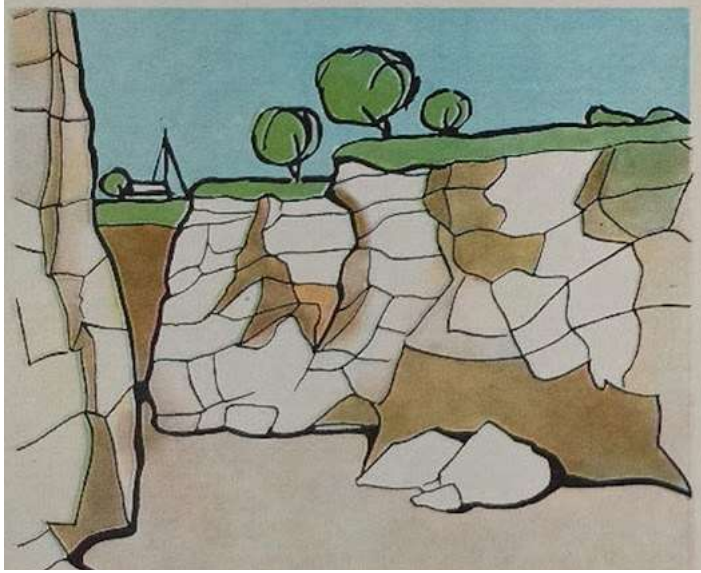


Землянка



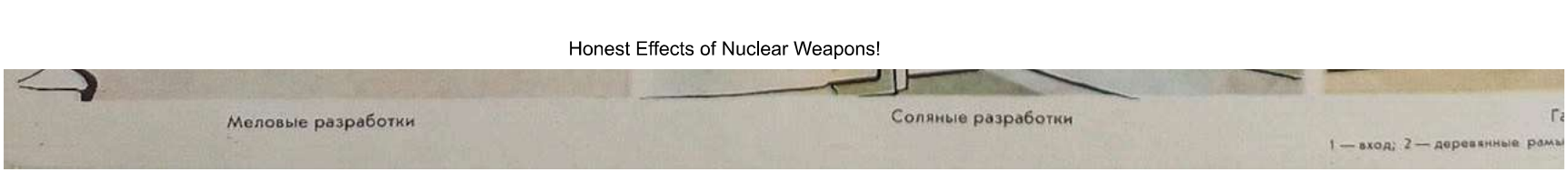
Укрытие из арочных фашин

В районах горнодобывающей и угольной промышленности под укрытия могут быть использо выработки по добыче строительных материалов, катакомбы, пещеры и др.








Меловые разработки
Соляные разработки
1 — вход; 2 — деревянные рамы

УБЕЖИЩА, ПОСТРОЕННЫЕ С УЧЕТОМ ИХ ИСПОЛЬЗОВАНИЯ В МИР

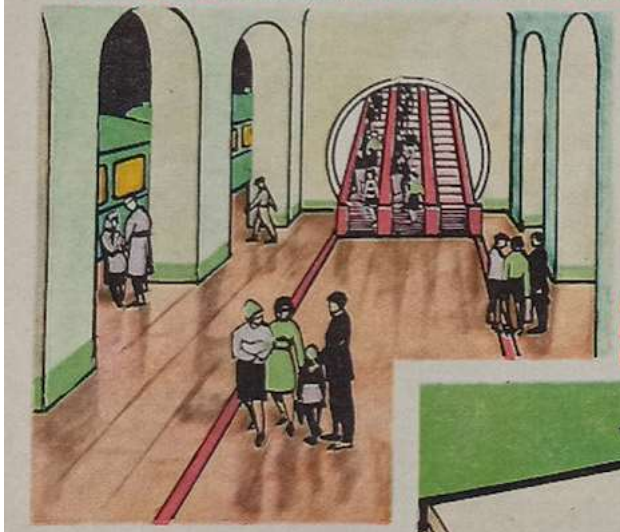
ДЛЯ НУЖД НАРОДНОГО ХОЗЯЙСТВА

SHELTERS BUILT TA
IN PEACETIME FOR
ECONOMY

К убежищам предъявляются специальные требования: надежность защитных устройств и внутре возможность самостоятельного выхода людей после ядерного взрыва, использование в мирное время хозяйства.

Подземные гаражи, предприятия общественного питания, склады, шахты и горные выработки обл ностью и имеют необходимое оборудование. В военное время они могут быть быстро подготовлены дл

Shelters must have reliable protection and equipment and an escape exit for emergencies where the entrance is blocked, and peacetime uses for ec catering establishments, warehouses, mines and mine workings are highly durable and have the necessary equipment. In wartime, they can be quic

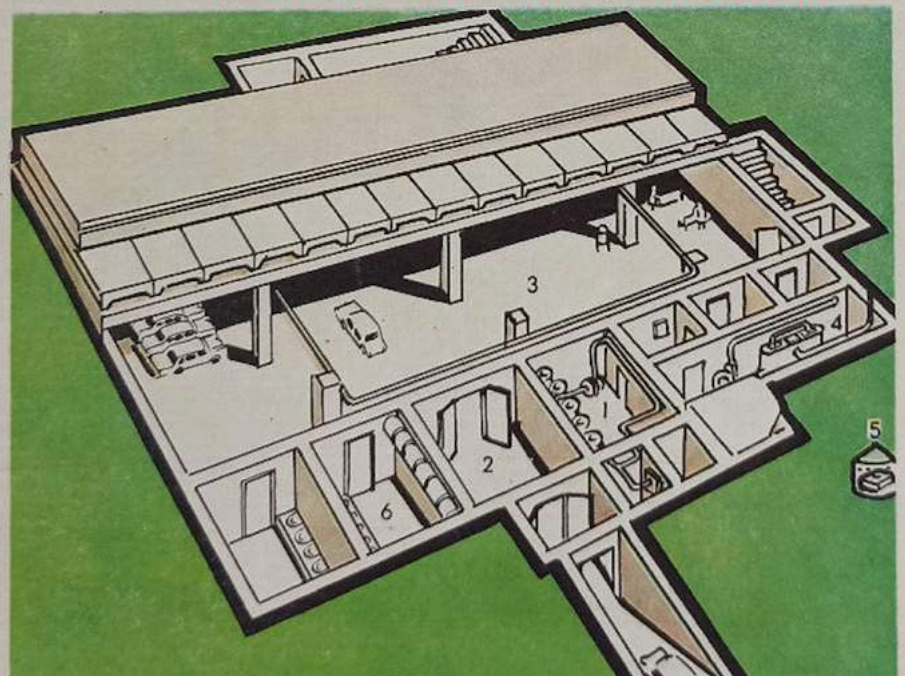


Метрополитены обладают высокими защитными свойствами и являются наиболее современным коллективным средством защиты людей от оружия массового поражения

КОЭФФИЦИЕНТ ОСЛАБЛЕНИЯ ИЗЛУЧЕНИЯ:

Каменное одноэтажное строение	10—13 раз
Подвал каменного одноэтажного строения	40—60 »
Каменное двухэтажное строение	15—20 »
Подвал каменного двухэтажного строения	100—130 »
Каменное трехэтажное строение	20—33 раза
Подвал каменного трехэтажного строения	400—600 раз
Перекрытые щели	40—50 »
Противорадиационные укрытия и убежища	400—1000 »
Пассажирские вагоны	3 раза
Грузовые вагоны	2 »
Кабины бульдозеров, кранов	4 »
Шахты, горные выработки — облучение практически исключено	

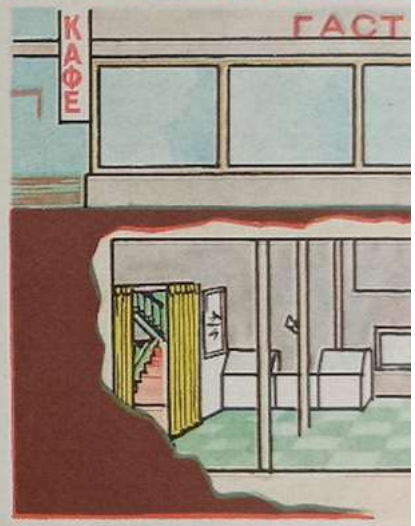
Radiation protection factors: 1-story house 10-13; basement of 1-story house 40-60; 2-story house 15-20; basement of 2-story house 100-130; ... shelters 400-1000



Dual use underground large capacity car park/garage, with equipment to allow immediate conversion into a shelter

Отдельно стоящее убежище — гараж большой вместимости:

1 — помещение фильтровентиляционного оборудования; 2 — тамбур-шлюз с защитно-герметическими дверями (воротами); 3 — помещение для укрываемых; 4 — помещение для электрогенераторов с дизельны-

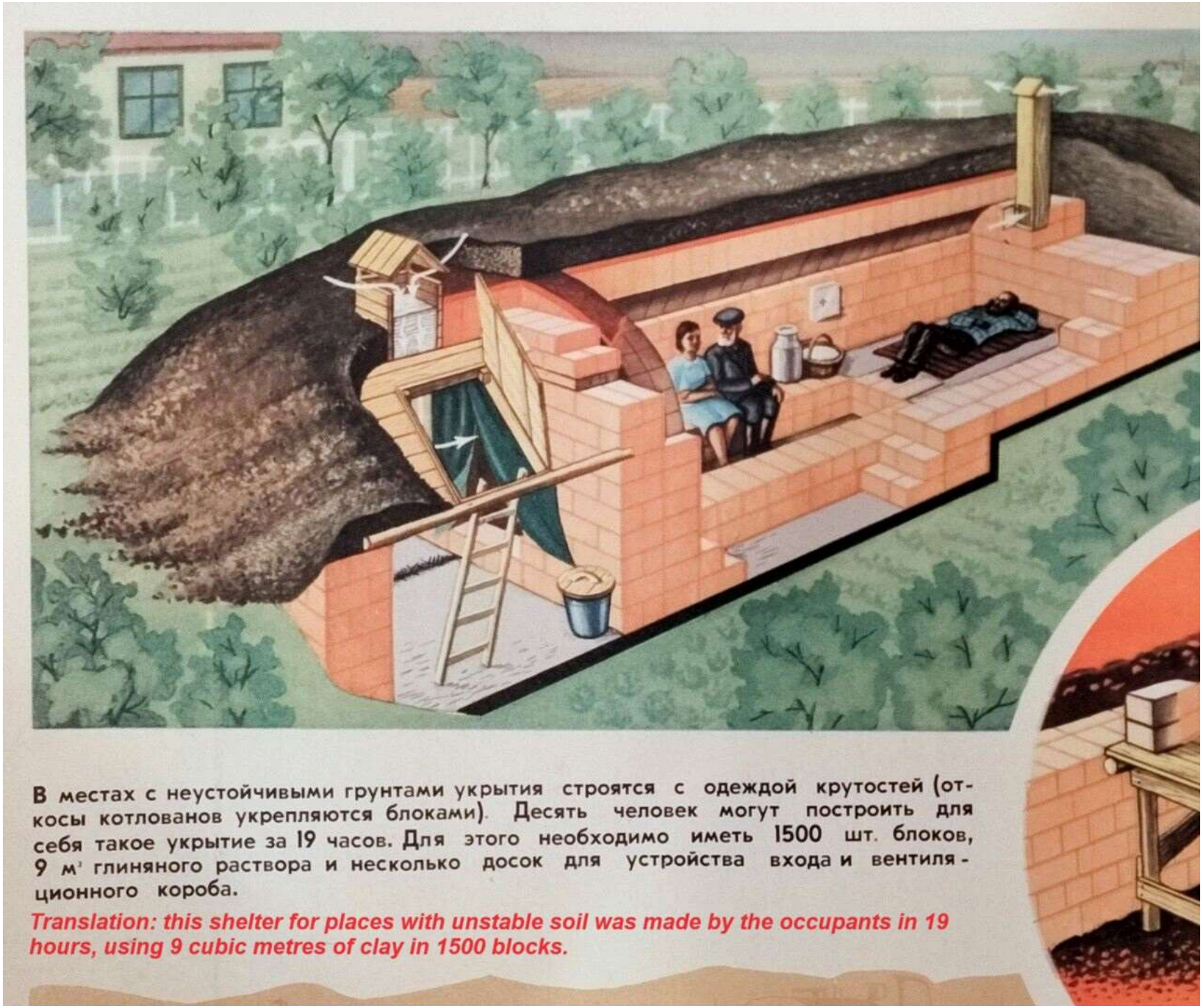


Убежище, построенное с учетом
под ка

Dual use underground basem cafeteria in in peacetime




ми установками; 5 — вентиляционный оголовок с защитным устройством для отсекания ударной волны; 6 — помещение санузла с резервуаром запаса воды
water tank
Специально обо
Mine equipped for dual use as a



В местах с неустойчивыми грунтами укрытия строятся с одеждой крутостей (откосы котлованов укрепляются блоками). Десять человек могут построить для себя такое укрытие за 19 часов. Для этого необходимо иметь 1500 шт. блоков, 9 м³ глиняного раствора и несколько досок для устройства входа и вентиляционного короба.

Translation: this shelter for places with unstable soil was made by the occupants in 19 hours, using 9 cubic metres of clay in 1500 blocks.

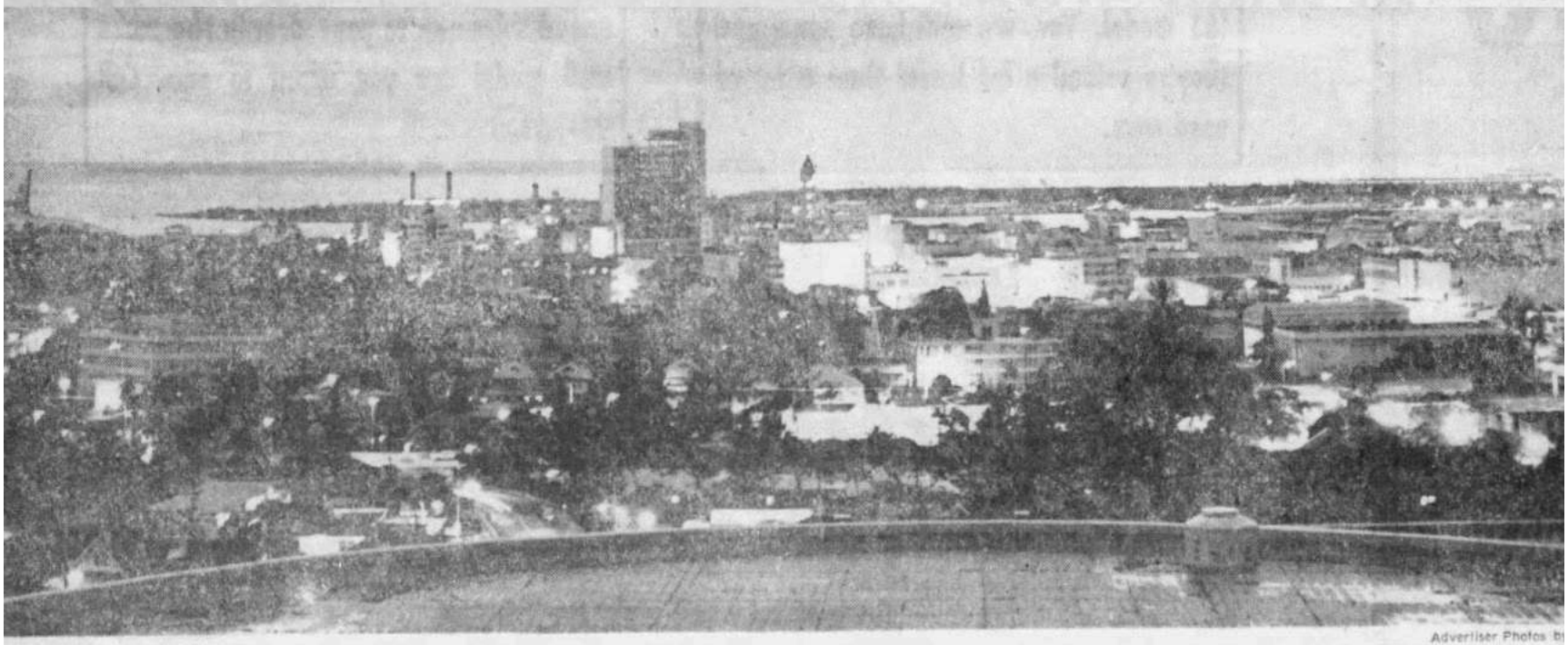
Extract from 1972 Russian nuclear shelters poster "Anti-radiation shelters made of Adobe blocks" giving severa fallout gamma radiation protection factor of 400-700, using adobe/clay blocks.




ФИЛЬТРУЮЩИЕ ПРОТИВОГАЗЫ
ОБЕСПЕЧИВАЮТ ЗАЩИТУ ОТ ПОПАДАНИЯ В ОРГАНЫ ДЫХАНИЯ, ГЛАЗА И НА ЛИЦО РАДИОАКТИВНЫХ, ОТРАВЛЯЮЩИХ ВЕЩЕСТВ И БАКТЕРИАЛЬНЫХ (БИОЛОГИЧЕСКИХ) СРЕДСТВ
ПРОТИВОГАЗЫ ДЛЯ ВЗРОСЛЫХ
ОБЩЕВОЙСКОВОЙ ПРОТИВОГАЗ
ГП-5
ГП-4у
ДЕТСКИЕ ПРОТИВОГАЗЫ
ПДФ-Ш
ПДФ-7
ДП-6
1986
mask

A-6 HONOLULU ADVERTISER Tuesday, July 10, 1962

N-Blast Turns Darkness



Advertiser Photos b

Thermonuclear blast 800 miles away lights city. Bright core of blast is visible above Ala Moana Bldg.

Sunday, November 3, 1963 THE BATTLE CREEK ENQUIRER AND NEWS

Atomic Retaliation Jeopardized

Electromagnetic Pulse Effects Revealed Publicly First by Reserve Generals Goldwater, Thurmond in Fight on Test-Ban Treaty

This country has a highly elaborate system of electronic communications to make sure that retaliation to a foreign attack is both massive and immediate. Now evidence is strong that the whole system could go haywire with the explosion of a single high-altitude bomb.

By WATSON DAVIS

WASHINGTON—The entire nuclear defense of the United States is in jeopardy because of an atomic bomb effect which has so far been kept under strict secrecy.

Realization has grown that the explosion of an atomic bomb, either the old-fashioned fission kind or the hydrogen or nuclear fusion sort, sets up extremely high and powerful radiation of an electrical nature.

The electromagnetic pulse, EMP, as it is called, has the effect of putting out of commission the ordinary electrical control systems that must be relied on to launch and guide our missiles that would carry retaliatory atomic warheads to the enemy which makes an atomic attack on the nation.

The explosion of an enemy bomb within even a few hundred miles of one of our atomic missiles ready to be launched would put it out of commission unless the control and launching mechanisms are redesigned to withstand these effects. It is not necessary for the enemy bomb to make a direct hit.

* * *

THESE EMP EFFECTS were demonstrated vividly during the high altitude tests of 1958 in the South Atlantic and 1962 in the South Pacific.

The EMP phenomenon had been observed from the very beginning of atomic testing in 1945. But the magnitude of the effects and their seriousness has been realized most vividly in the last decade.

The United States is pledged not to launch atomic bombs first. But it would utilize its gigantic nuclear strength in retaliation for an atomic strike at our country or our allies. The disabling effects of EMP created by bombs fired at us are of extreme seriousness.

In effect, a thermonuclear hydrogen fusion bomb of 50 megatons, a size that can be expected in actual warfare, would virtually wipe out catastrophically the electrical and electronic systems within a radius of 120 miles of where it strikes.

Even outside this area there would be many damaging effects. Smaller bombs would have smaller areas of complete disdisaster but their effects, too, would be very extensive.

* * *

THE SCIENTISTS AND the military charged with our atomic defense and attack are most concerned about the effect of EMP upon the electrical circuitry that will control in launching and in flight and the electronic trigger mechanism of our Minuteman missiles as well as the Titan and Atlas missiles, all of which are land based.

Less vulnerable would be the submarine-launched Polaris missiles which are on the alert in relatively large numbers under the sea.

There is research under way, under pressure, to counter the effects of EMP by what is called "hardening." This involves redesigning all of the modern circuitry including antennas, the electronic triggers that set off the bombs, circuits in inertial guidance systems, and the long lines of communication from control centers which would give the orders to put the retaliatory firing of nuclear missiles in action.

* * *

IRONICALLY, information about EMP has been kept under such security wraps that the first detailed information has come to the public through revelations made by two reserve major generals, one in the Air Force and one in the Army, who are U.S. Senators. During the test ban treaty debate in the Senate, Senators Barry Goldwater (R-Ariz.) and Strom Thurmond (D-S.C.), both of whom opposed the ratification of the treaty, put into the proceedings of Congress to support their stand technical data, which previously had not been available (Congressional Record, Sept. 19).

Sen. Goldwater introduced into the Record a paper prepared by Dr. V. W. Vodicak, technical director of Joslyn Electronic Systems Division, and Dr. John A. Kuypers of Stanford University.

* * *

THE EXPLOSION of an atomic bomb causes a gigantic electrical surge of extremely high voltage although of short duration. Even the early old-fashioned fission bombs of relatively small size caused increases in voltages on power lines in the region where they were exploded. Circuit breakers on main feed lines were tripped due to the excessive voltage and this effect was felt in areas more that is known generally comes from foreign unclassified sources such as technical magazines and reports. The Vodicka-Kuypers report says that "our systems design and implementation remains in the horse and buggy stage with respect to nuclear electromagnetic effects."

Besides the EMP effect the nuclear explosions cause other electromagnetic disturbances. In every high altitude test, by both Americans and Russians since 1953, artificial auroras have been produced. This is the so-called Argus effect because it was most prominently recognized in the U.S. Argus test series in the South Atlantic in August 1958. An atomic bomb can create a man-made aurora at any desired location that is equal to the electrical disturbance of any recorded sunspot storm.

This aurora causes severe electrical disturbances that affect radio and cable communications more severely than sunspots. In 1958 a low-yield shot at only a 200-mile altitude in the South Atlantic caused the undersea coaxial cable across the North Atlantic, thousands of miles away, to fail to function from time to time.

* * *

OTHER NUCLEAR blast effects, electrical in their nature, are:

1—Bursts of neutrons, which like the EMP cause abnormal voltages in electrical wires, and result in insulation breakdowns due to heat, chemical change and other effects.

2.—A sort of artificial lightning, a static discharge effect, which particularly damages radio antennas and other metal of the electrical systems above ground. Some of these effects are suficient to melt the structural compounds and cause a collapse of the antenna.

3—Radio transmission is affected seriously, particularly in the low-frequency and ultralow-frequency ranges of radio communication.

4—Great bursts of gamma rays or x-rays are produced by a nuclear explosion. The effects of these are very serious and some information suggests that the atomic bomb blast will melt the plutonium and fusionable light element compounds that

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Can EMP Neutralize SAG

By STAN KAUFMAN

Increased concern over the effect of electromagnetic pulse (EMP) on the electronic and electrical systems used in launch and guidance procedure of the U.S.'s retaliatory missiles also spotlights the air defense network of the nation. For this is a highly-sophisticated electronic and electrical net subject to tampering.

* * *

"Could SAGE installations such as that of the Detroit Air Defense at Custer Air Force Station be rendered useless by a nuclear air burst?"

* * *

If the effect of EMP proves a devestating as some Joslyn authorities claim, the entire system **could** be neutralized by an offensive assault. It would not need to be destructive on the ground to be electronically paralyzing.

The local SAGE facility is responsible for the air defense of a highly industrialized section of the midwest encompassing some 220,000-square miles of real estate and 22 million inhabitants. To provide data for the destruction of incoming enemy aircraft, high speed computations are made on electronic equipment in the "blockhouse" at Custer.

If information made public on EMP by the two U.S. senators who opposed the test ban treaty can be taken as "gospel," there can be no doubt that the circuitry and communications utilized in SAGE also would be so affected as to make the system inoperative on an automatic basis.

But any claim that our missiles in silos would be deactivated by EMP has been described by Secretary of Defense Robert S. McNamara as "pure fantasy."

* * *

IN A QUERY to local SAGE officials, the Enquirer and News was given the copy of a reply that was made by Sec. McNamara in September, but the reply did not present any definite answer as to what effect EMP would have on SAGE.

McNamara stated: "It is pure fantasy . . . fiction. There is no possibility that a Soviet bomb, no matter how large, could under today's conditions, in any way, kill or prevent from functioning effectively our nuclear weapons."

Not satisfied with this state reply, the Enquirer and News again queried the Air Force and North American Air Defense Command at Colorado Springs came up with a more positive statement. But before it can be made available to the newspaper, it must be cleared by the Pentagon in Washington.

Some unofficial AF comments implied that there would be no interference on the SAGE system from a nuclear test. But there was no definite reassurance.

Gen. Thomas C. Power, commander of the Strategic Command, expressed fear if EMP wiped out the U.S. tronic surveillance and guid system, we would have no p to retaliate. (His testimony fore the Senate on the test treaty was highly censored fore made public.)

One effect of EMP's ener described as a quality v erases data stored on mag tapes or drums, which ar heart of the SAGE system This information is ana and relayed to jet interc weapon systems and grou air nuclear-tipped miss poised to destroy invading b er forces.

A burst of electromag

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than 80 miles from where the bomb was exploded.

Most of the instrumentation failures that plagued early bomb tests were due to this effect. The effect cannot be avoided by covering cables with earth because buried cables suffer along with antenna and other electrical devices exposed above ground. Insulation is destroyed by the excessive voltages of EMP and the excessive strength of the electrical current that run along the conductors to distant terminals and puts them out of action.

Research of the highest priority today in connection with defense activities includes the redesign of our existing electrical and electronic systems, including radar, to avoid the danger of their being put out of action by the EMP effects of enemy atomic attack.

Those working on our scientific research have been hampered by lack of information on the EMP and associated atomic effects, although there has been distributed, with a secret classification, studies and information which are not yet available to the general public.

* * *

MOST OF THE information comprise the warheads of the nuclear bombs which we rely on to fling in retaliation to an attack upon this country.

* * *

EXPERTS ARE concerned that there are no reliable data compilations, such as a handbook, that can be used by the thousands of engineers and scientists who are working on our communications and weapons systems which must be redesigned and "hardened" in order to take care of the EMP and other nuclear explosion effects.

The electrical effects of atomic explosion which are now causing great concern are additional to the radiation, blast and extreme heat which would be produced by gigantic H-bomb explosions. These effects are better known and have been better publicized in connection with civilian defense than the electrical effects. But they are fundamentally no more serious from the standpoint of our counter measures and the defense of the country.

The electromagnetic effects which are now becoming realized are additional bomb dangers.

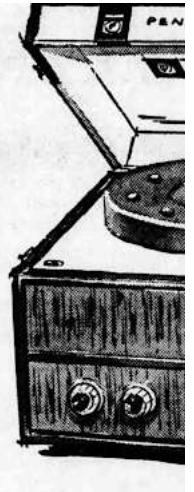
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REVEALED DURING SENATE DEBATE

A-Retaliation Jeopardized By Electromagnetic Pulse

By WATSON DAVIS
Director, Science Service

WASHINGTON — The entire nuclear defense of the United States is in jeopardy because of an atomic bomb effect which has so far been kept under strict secrecy.

Realization has grown that the explosion of an atomic bomb, either the old-fashioned fission kind or the hydrogen or nuclear fusion sort, sets up extremely high and powerful radiation of an electrical nature.

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Most of the instrumentation failures that plagued early bomb tests were due to this effect. The effect cannot be avoided by covering cables with earth because buried cables suffer along with antenna and other electrical devices exposed above ground. Insulation is destroyed by the excessive voltages of EMP and the excessive strength of the electrical current that runs along the conductors to distant terminals and puts them out of action.

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The present system of punctuation as a means of dividing written language into sections by various symbols was developed, with subsequent variations, from a system employed by an italian scholar and printer, Aldus Manutius, in the late 15th and early 16th centuries.

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INFORMATION LACKING

Those working on our scientific research have been hampered by lack of information on the EMP and associated atomic effects, although there has been distributed, with a secret classification, studies and information which are not yet available to the general public.

Most of the information that is known generally comes from foreign unclassified sources such as technical magazines and reports. The Vodicka-Kuypers report says that "our systems design and implementation remains in the horse and buggy stage with respect to nuclear electromagnetic effects."

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THE RECORD, TUESDAY, NOVEMBER 5, 1963

Electromagnetic Pulse Imperils Nuclear-Attack Defense Of U.S.

Atomic-Bomb Effect Nullifies Systems For Launching Hit-Back Missiles

By WATSON DAVIS

Washington (SS) — The entire nuclear defense of the United States is in jeopardy because of an atomic-bomb effect which has so far been kept under strict secrecy.

Realization has grown that the explosion of an atomic bomb, either the old-fashioned fission kind or the hydrogen or nuclear-fusion sort, sets up extremely high and powerful radiation of an electrical nature.

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A. E. C. Shuts Off Historic Reactor

Oak Ridge, Tenn. (AP) — The Atomic Energy Commission shut down its oldest operating

atomic reactor yesterday.

At 2:13 P. M., the reactor, or nuclear furnace, ceased operation — 20 years, 11 hours and 13 minutes after it began functioning.

Dr. Richard Doan, one of the pioneers in the nation's atomic energy program, pushed a button that signaled the end of the graphite reactor's controlled reaction. A. E. C. Chairman G. T. Seaborg and a host of dignitaries looked on.

Doan was the first research director at Oak Ridge National Laboratory and was one of the little band of scientists and engineers present at 5 A. M., Nov. 4, 1943, when the reactor began operating.

The graphite reactor served as a pilot plant for the production of plutonium during World War II.

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POLARIS LESS VULNERABLE

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Less vulnerable would be the submarine - launched Polaris missiles which are on the alert in relatively large numbers under the sea.

There is research under way, under pressure, to counter the effects of E. M. P. by what is called hardening. This involves

region where they were exploded. Circuit breakers on main feed lines were tripped due to the excessive voltage and this effect was felt in areas more than 80 miles from where the bomb was exploded.

REDESIGN RESEARCH

Most of the instrumentation failures that plagued early bomb tests were due to this effect. The effect cannot be avoided by covering cables with earth because buried cables suffer along with antenna and other electrical devices exposed above ground. Insulation is destroyed by the excessive voltages of E. M. P. and the excessive strength of the electrical current that run along the conductors to distant terminals and puts them out of action.

Research of the highest priori-

A-2 HONOLULU ADVERTISER Monday, July 9, 1962

TIDE: High 11:02 a.m., 9:26 p.m. Low 4:01 a.m., 4:08 p.m.

Blast Lights Isles

Continued from Page 1

Lights Go Out As Bomb Blasts

The street lights on Ferdinand St. in Manoa and Kawainui St. in Kailua went out at the instant the bomb went off, according to several persons who called police last night.

Repairmen were sent to investigate.

Police were sent to a South St. warehouse when a burglar alarm started ringing at the time of the blast.

THE HONOLULU ADVERTISER
605 Kapiolani Blvd.
at South St. Honolulu 2, Hawaii
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Matter in Honolulu, Hawaii
Telephone All Departments 52977

THE KINGSTON WHIG-STANDARD — WEDNESDAY SEPTEMBER 24, 1958 PA

Kremlin Builds Shelter In Volga River Reg

BONN (NANA) — A nuclear war command post has been constructed for the Kremlin's top leadership 450 miles east of Moscow near the Volga river, according to Bonn government intelligence officials.

The Kremlin's nuclear shelter is described as a rough approximation of that constructed for U.S. government leaders in the Maryland mountains.

Situated in the centre of a prohibited area 12 miles in circumference, the Kremlin shelter reportedly is sunk 120 feet in the earth and has space for 200 persons.

It is claimed that the Kremlin's underground "fortress," if cut off from outside assistance, could hold out for six months entirely on its own resources.

Construction is said to have begun in 1954. Reportedly in charge of the project were professors Iuri Makasarov, who recently was named chairman of the Soviet State Commission for Science and Technology, and Michael Lavrentiv, an automation expert.

Reports say the bunker is an automation showcase--a so-called "robot city" designed to free its occupants of all housekeeping tasks.

More than half of the bunker's space is said to be filled with communications and other technical equipment designed to permit the Kremlin's leaders to exercise command of a nuclear war through remote control.

There reportedly are conference rooms, supply chambers and a hospital. The largest single chamber is said to be a 600-foot-long hall designed as a communal living quarter.

The shelter's security belt was cleared of its normal civilian population prior to the beginning of construction, the intelligence sources say.

The peasants moved out of the security area, they add, have been replaced by secret police and troops who, wearing civilian clothin ers, ev the la ants.

Sovie chev h of Jos transfe ment f at the

Khru could h efficien mand vance.

NO FO

Red Ships Spy on Pacific Nuclea

WASHINGTON, May 25 (UPI)—Three Russian ships loaded with electronic gear are spying in the U.S. nuclear test area of the Pacific and are gathering valuable military information, the Defense Department said today.

But a Pentagon spokesman said the vessels are outside the restricted zone surrounding Christmas Island, and are within their rights.

No action is planned except to warn them of possible danger from the explosions, he said.

The ships are only 10 to 15 miles outside the restricted area about 400 miles west of Christmas Island, he said, and have ignored efforts by American vessels to warn them of danger.

Recalling that the Russians complained of fallout danger to one of its vessels in the 1958 Pacific tests, the spokesman said they apparently are not concerned about such danger now.

The largest of the Russian vessels was identified as the 3,600-ton hydro-meteorological ship Shokal'skiy. It was said to have a great variety of electronic devices, 16 laboratories and a pad for launching rockets capable of reaching ionosphere.

It is accompanied by two smaller ships, which are converted trawlers equipped to obtain auxiliary electronic data.

The Pentagon spokesman said the ships can obtain information on weapons design through "radio-chemical" analysis. They can measure the size of the nuclear test explosions as well as determining their exact time and position.

To reach their present positions, the Soviet ships cross the restricted area around Johnston Island, the spokesman said.

In answer to a question, he said that even within the restricted area the United States has no power except to warn ships of danger.

"Although they are currently just outside the restricted boundaries, they have ignored a U.S. Navy destroyer which approached to warn them of possible danger," the spokesman said. He added:

"Following the last U.S. nuclear test conducted in the Pacific in 1958 the Soviets complained that another of their research ships had suffered fallout damage, and protested to the United States.

"Yet by maneuvering and remaining so close to the well - publicized restricted

Turn to Page 1-A, Column 6

★ ★ ★ ★

U.S. Fires 13th N From Plane Near

The 13th blast in the U.S. Pacific nuclear test series—Operation Dominic—was set off today near Christmas Island.

The latest explosion at 5:15 a.m., Hawaiian time, was announced by the Department of Defense and the Atomic Energy Commission.

There was no indication that the test

Monday's Circulation 104,280

COMPLETE N.Y. STOCKS IN THIS EDITION

Honolulu Star-Bulleti

Vol. 51, No. 145 ★★★★ HONOLULU, HAWAII, FRIDAY, MAY 25, 1962 HOME EDITIO

4—Hilo Tribune-Herald, Wednesday, February 12, 1964

U.S. Toughens Arsenal Against N-Blow

By RAY CROMLEY

WASHINGTON—(NEA)—Below the surface of debate over reliability of U.S. missiles lies a definite scientific problem we are moving with all possible haste to correct.

Responsible missile scientists question after a strong Russian nuclear attack how many missiles we are certain will be usable and accurate. The damage they fear is from radiation and neutrons which would be liberated by enemy blasts.

With conventional circuitry, high-intensity radiation pulses from a nuclear explosion can scramble the memory of a missile guidance computer, prematurely trigger a decision circuit and cause other equipment malfunction.

A one-megathon explosion in space will produce a crippling 10-million-roentgen-per-second pulse more than 110 miles away. Effects of these pulses have been measured through almost a quarter of a mile of earth.

★ ★ ★

STEPS ARE BEING TAKEN to correct these difficulties. The Defense Department is installing circuits, tubes, insulation and sensing devices better able to withstand this electromagnetic pulse.

Some components are being sealed in vacuum so there is no air to be ionized and cause stray currents. Components made of metal-ceramic combinations are being substituted for components made of radiation-susceptible organic materials.

Some circuits will be kept at high temperatures to defeat the effects of sudden electromagnetic pulses. Some parts of the missile control system are being rejiggered to operate at higher frequency levels less likely to be

The reason for lingering doubt is simple. It isn't always possible to know what big-scale pulses will do simply by making small-scale tests and applying mathematics.

Therefore the Defense Department is pushing a series of experimental projects aimed at working out new techniques for testing the effects of nuclear explosions and electromagnetic pulses on the complex electronics of our missle systems.

★ ★ ★

BY THIS SAME TEST of reliability, bombers would seem to be even less reliable than the big missiles. That is, a smaller percentage of intercontinental bombers would probably live through an all-out Soviet nuclear attack. Fewer would get through Red defenses.

Polaris submarines should be in better shape. If they're hidden in the seas, far from targets, it's unlikely that large nuclear weapons will explode nearby. The water also helps damp any electromagnetic pulse.

The Pentagon theory, therefore, is that a combination of Minutemen, Titans, Polaris submarines and intercontinental bombers should guarantee there will be enough missiles and bombers workable to deefat the Soviet Union if Khrushchev should attack—or to deter him from doing so.

★ ★ ★

an Orchid Lei

To Harold H. Manago of Captain Cook, Kona, appointed as Second Senatorial District mem-

affected by the electromagnetic pulse sent out by a nuclear expulsion.

Missiles and their sites are being hardened against radiation as well as blast. Shielding is being inserted to protect sensitive components.

★ ★ ★

THE NUCLEAR BAN makes full-scale tests of the new equipment impossible. Small-scale tests have been satisfactory. By mathematical interpolation, the defense scientists reason, the Minuteman and Titan missile complexes probably will stand up—when refurbishing is completed — against electromagnetic pulses sent out by all nuclear explosions, except those that are large and close by.

"But we're not certain beyond all doubt," says one scientist. "And in defense we must be absolutely certain; that's why we're keeping the intercontinental bombers, too."

ber of Board of Education.

★ ★ ★

To Tadashi (Ted) Suzuki of Hilo, named as Hawaii County member of Hawaii Housing Authority.

★ ★ ★

To Donald S. Shintaku of Kapapala, Kau, named State Outstanding Young Farmer of 1963.

★ ★ ★

To John Kekua of Hilo, re-elected president of Hawaii Island Chapter of National Foundation.

★ ★ ★

To James L. Reid of Hilo, named member of the Maritime Administration Unit of the National Defense Executive Reserve.

★ ★ ★

To Wataru Kohashi of Hilo, elected president of AJA Veterans Council.

Friday, February 14, 1964 Santa Cruz Sentinel —23

Biossat & Cromley

Washington Column

NEA Washington Correspondent

U. S. Toughens Arsenal Against Nuclear Blow

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A-6 Honolulu, July 23, 1967 THE SUNDAY STAR-BULLETIN & ADVERTISER ★ ★ ★

Grim Scenes Painted by McNamar

WASHINGTON (UPI) — Raging fire storms 100 times more intense than those which consumed Hamburg, Germany in World War II engulf America's cities. Much of the continent's oxygen is consumed by them. Tidal waves triggered by a nuclear explosion destroy Hawaii and Alaska. No one knows how many millions die.

The picture was painted yesterday by Rep. Craig Hosmer, R-Calif., ranking GOP House member of the House - Senate Atomic Energy Committee. He offered a scenario to describe what could happen to the United States under the nuclear strategy of Defense Secretary Robert S. McNamara.

The kicker to Hosmer's graphic presentation was that the aggressor, who he leaves no doubt is Russia, would accomplish his monumental scope of destruction with just 18 weapons, each carrying a warhead of 100 megatons.

Retaliation, the threat of which is supposed to prevent such a happening, would fail, Hosmer said, because the electromagnetic pulse emanating from the explosions would interfere with the guidance systems of the offensive American missiles.

Missiles that are launched and bombers that go off the ground can easily be taken care of by the Soviet anti-missile system, with which Russia is moving ahead in contrast to McNamara's cautious approach to a U.S. system, Hosmer said.

The Defense Department issued a statement strongly disputing Hosmer's claim that the United States would be powerless against a Soviet attack.

Air Force Secretary Harold Brown declared: "assertion that U.S. nuc forces could be rend ineffective by 18 Soviet megaton weapons or such weapons has no f dation in fact. Our deter capability is assured by fact that our strategic clear force consistin land-based missiles in h ened silos and submar based missiles and a bombers can survive enemy attack, reach enemy and penetrate his fenses to inflict damage him.

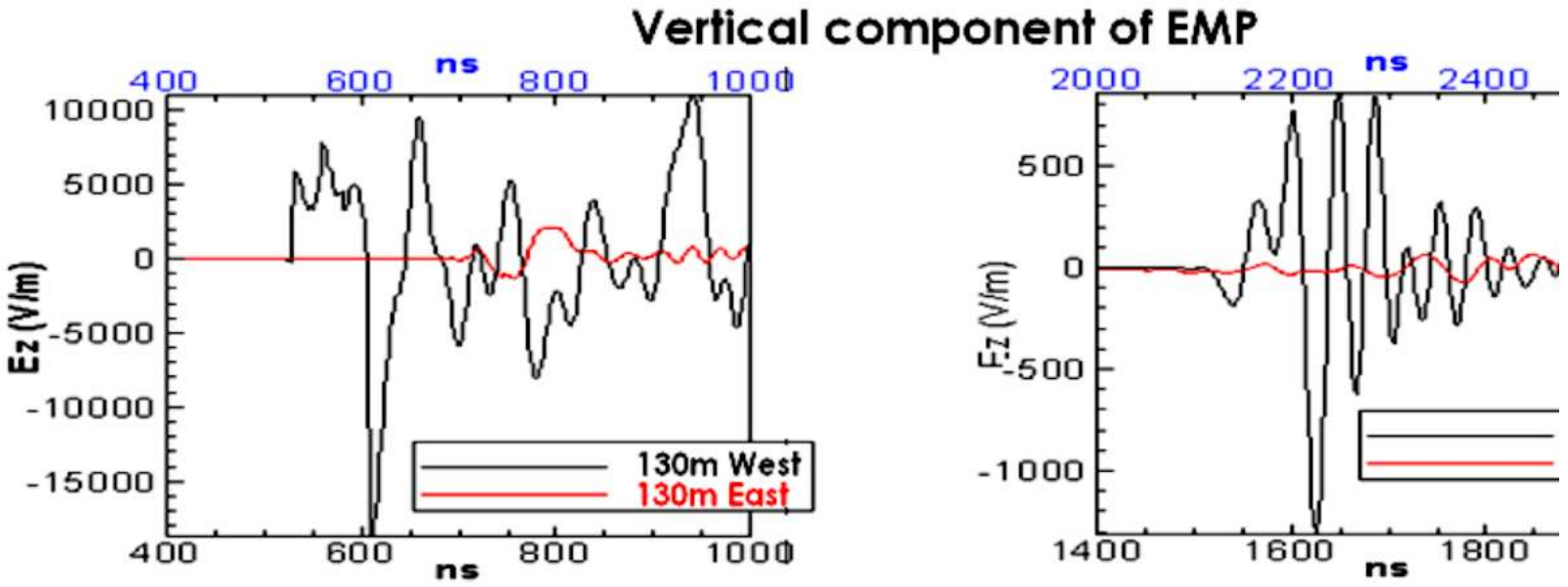
"And on each system, have an advantage over Soviet Union."

ENGINEERING
ELECTRONICS
TECHNOLOGY
SCHOOL

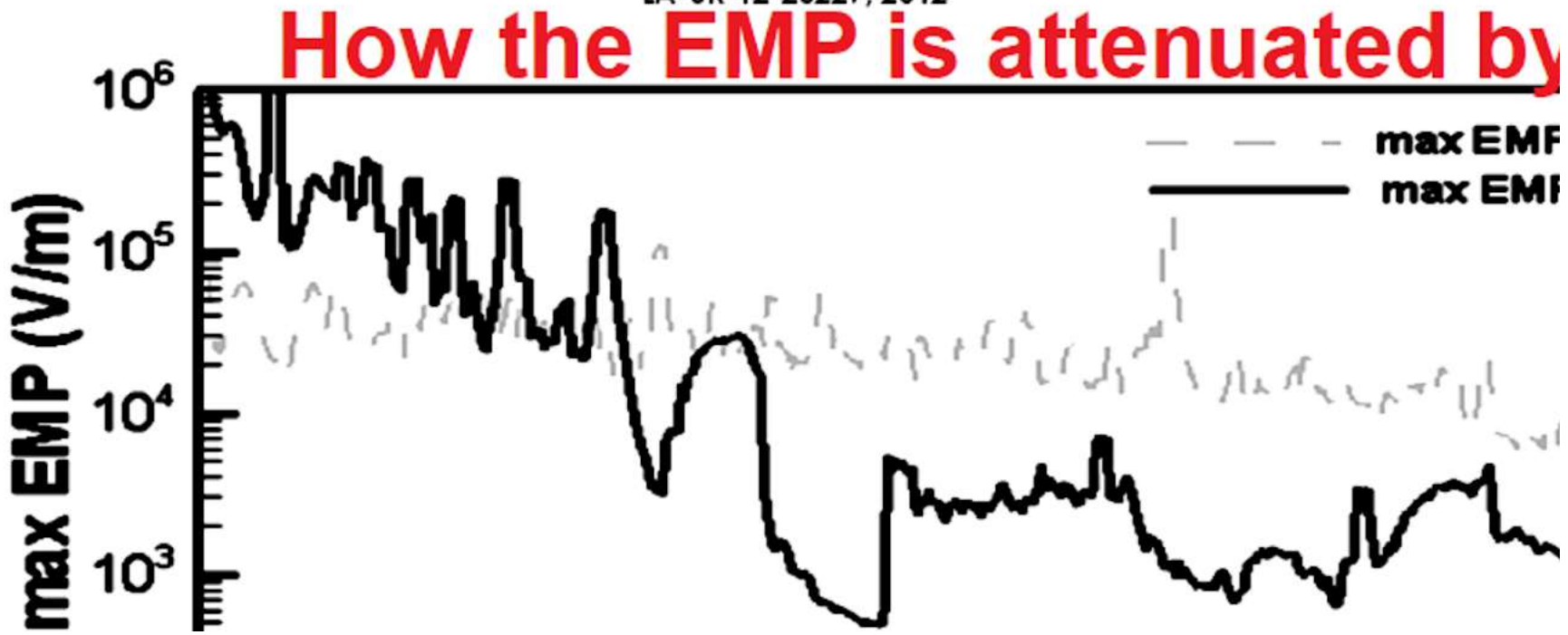
Two years of high school math required for entrance, plus successful passing of aptitude tests. Almost unlimited opportunities in the Pacific Area. New York Tech (founded 1910) Honolulu extension school. 1375 Dillingham Blvd. Phone 815-827. Day and Eve. classes. Approved for Vets.

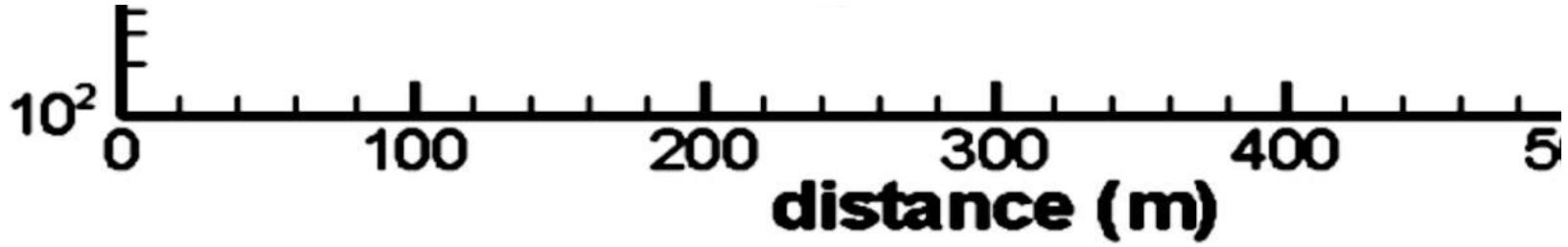
WITNESSES
To the accident between a compact car & a truck on Ala Moana Blvd. (ewa entrance to the park) around noon Monday, July 10th.
Please call Mr. Dizon at 963-322.

Sears
Patio Shop
SALE



William S. Smith, et al., Nuclear EMP simulation for large-scale urban environments, Los Alamos, LA-UR-12-20227, 2012





Effects of buildings on maximum EMP from a generic "Fatman" type bomb in downtown Houston, Texas

Tall buildings (1) attenua prompt gamma rays, (2) the line-of-sight (UHF) EM

Scott Smith, Jeff Bull, Trevor Wilcox, Randy Bos, Xuan-Min Shao, Tim Goorley, Ke

Nuclear EMP simulation for large-scale urban environments, Los Alamos LA-UR-12-2

Weather
Fair, Mild
High 85
(Details on Page 19)

THE EVANSVILLE COURIER Fi

117TH YEAR—NO. 158 Second-Class Postage Paid at Evansville, Ind. EVANSVILLE, IND., TUESDAY MORNING, JULY 10, 1962 22 PAGES

COMMUNICATIONS BLACKED OUT TEMPORARILY

H-Bomb Believed Exploded Record 400 Miles In Sp

Honolulu, Hawaii (UPI) —Scientists in Hawaii estimated Monday that the hydrogen bomb over Johnston Island, a multi-colored blast that was visible for 3,500 miles and temporarily blacked out transpacific communications, exploded a record 400 miles in space.

The huge fireball 700 miles away over Johnston Island was seen clearly early Monday by scientists atop 10,000-foot Mt. Haleakala on Maui, an observation point from which altitudes of previous blasts have been computed accurately.

In the megaton range, with power estimated at five million tons or more of TNT, the communications test shot was the biggest and highest of the current series at Christmas and Johnston Islands.

If the Hawaii estimate proves correct, it would be the highest U. S. nuclear shot ever. The highest previously announced were 300 miles, with much smaller explosions.

The high altitude H-bomb blast has been the target of protest by many scientists and has been denounced particularly by Iron Curtain nations.

THE 400-MILE estimate increased speculation that this might be the end of testing at Johnston this year. In two previous attempts instrument malfunction forced intentional destruction of the nuclear devices in flight. Weather caused several delays.

Originally the Johnston schedule called for three or four shots, starting at around 30 miles and stepping up to 500 or more. Some observers believed Sunday night's test was intended to gather all possible high altitude information in one shot.

It was designed to test the effects of a hydrogen explosion on radar and radio communications and show whether an electronic screen might be an effective defense against enemy missiles by disrupting their guidance systems.

Atomic experts in Washington said they expected little or no radioactive fallout from the test. Some of the debris, they said, would be hurled free of the earth's gravitational field. Other debris would be so widely scattered as to be comparatively harmless when it reaches earth.

"THERE IS no doubt," one authority said, "that space tests are the safest of all above-ground shots from the standpoint of fallout."

A spokesman for the U. S. Coast and Geodetic Survey in Honolulu said examination of magnetic field graphs showed a "very sharp departure" at time of detonation. This was followed by five or six minutes of activity, with a return to normal in about 30 minutes.

The spokesman said the blast made a "sudden impulse" on the graph. He indicated it was much greater than had been expected and he expressed amazement that the magnetic fields returned to normal so quickly.

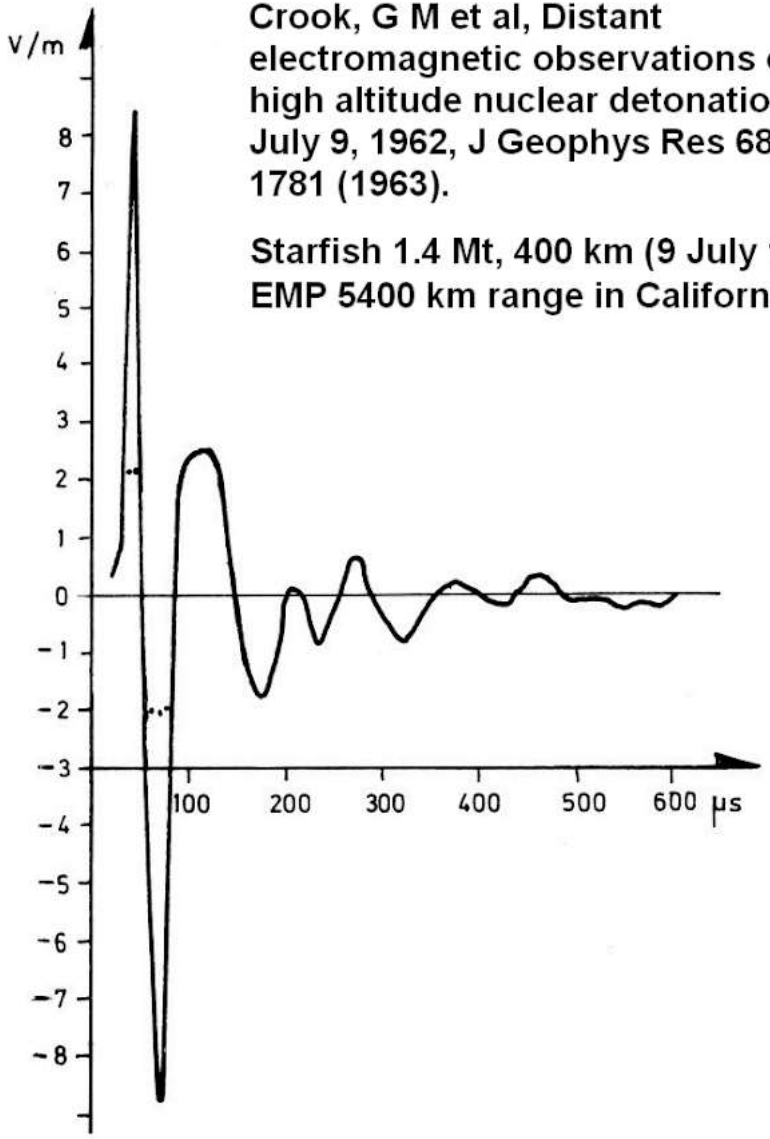
Disappointed by two previous postponements, sky-watchers in Hawaii and Fiji were rewarded richly.

Watchers in Hawaii, 750 miles failures in the air and by several northeast of Johnston, saw the sky lighted from horizon to horizon in icy blue, green, red and pink. Fifty minutes later a glow resembling the northern lights still hung in the sky.

IN THE FIJI Islands, more than 2,000 miles southwest of Johnston, residents saw the sky successively turn white, green, yellowy orange and crimson red. The flash was visible even in New Zealand where the sk at the deto glow followed ers, some se of hysteria, switchboards

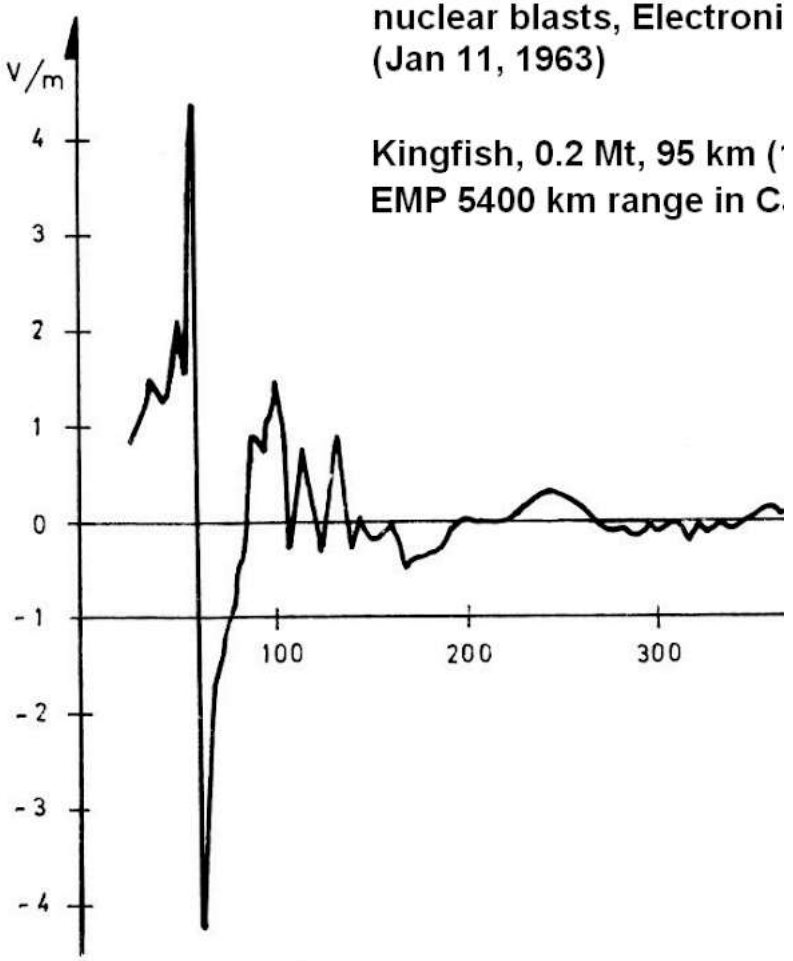
In Hawaii, ing 11 p.m. h some areas glar alarms raid sirens. were extingu lighted.

There was (Continued on



Crook, G M et al, Distant electromagnetic observations of the high altitude nuclear detonation of July 9, 1962, J Geophys Res 68, p 1781 (1963).

Starfish 1.4 Mt, 400 km (9 July 1962). EMP 5400 km range in California, 1962



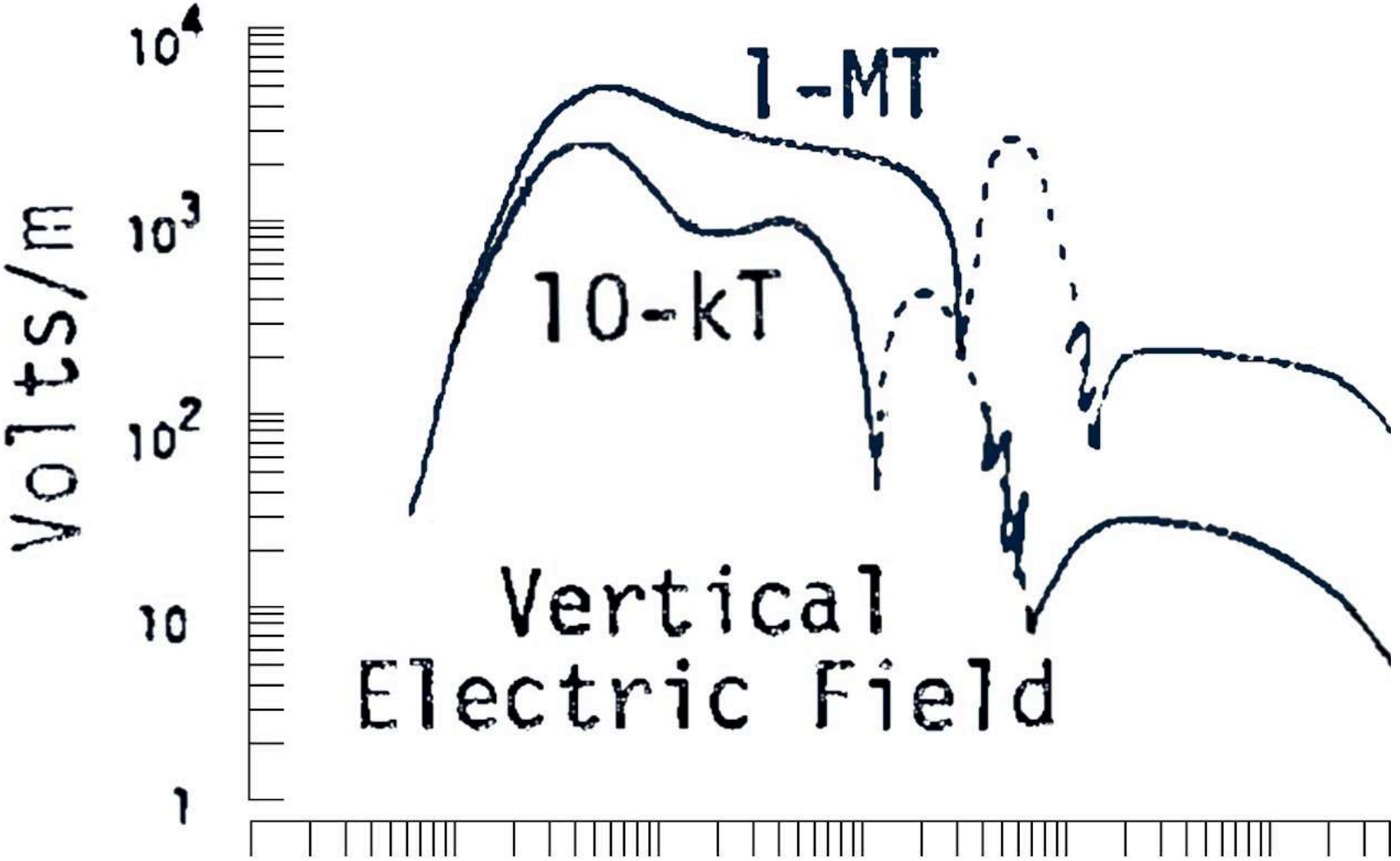
How radio can plot high nuclear blasts, Electroni (Jan 11, 1963)

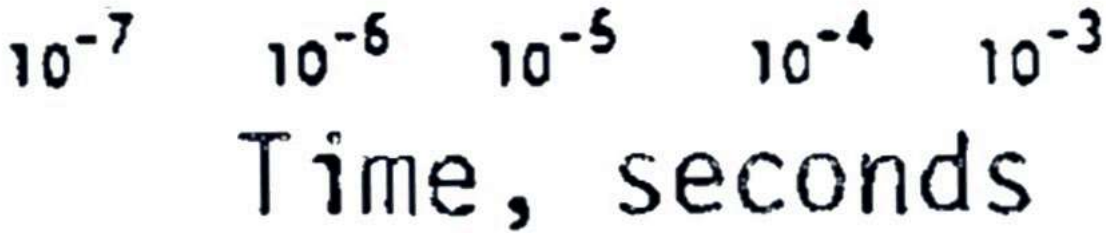
Kingfish, 0.2 Mt, 95 km (EMP 5400 km range in C

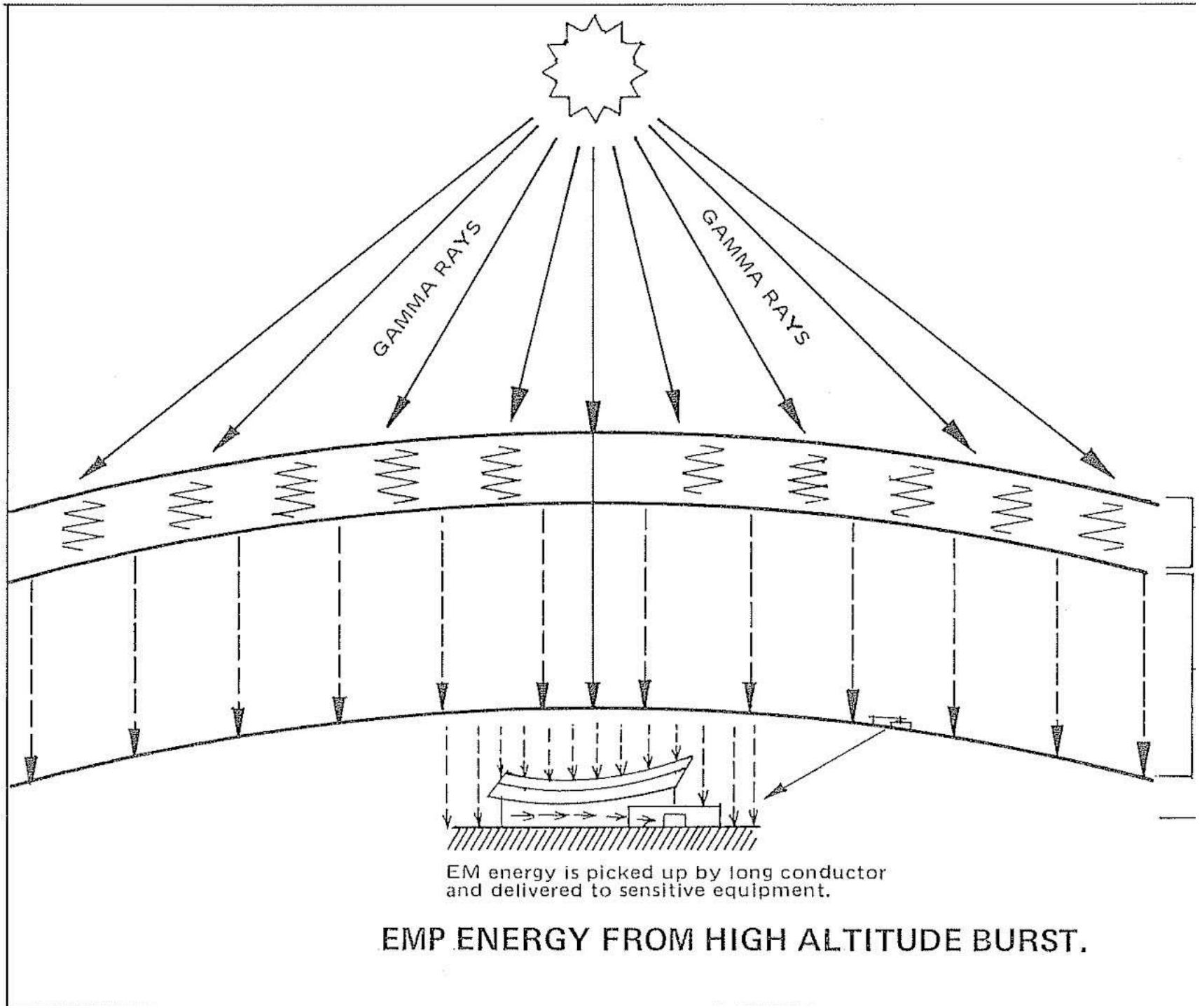
C. L. Longmire, "History and Physics of EMP," presenta
Fourth NEM Symposium, Baltimore, Maryland, July 2,

10 km range from surface bursts (soli

negative fields; dashed lines = positiv




10^{-7}
10^{-6}
10^{-5}
10^{-4}
10^{-3}
Time, seconds



EMP ENERGY FROM HIGH ALTITUDE BURST.

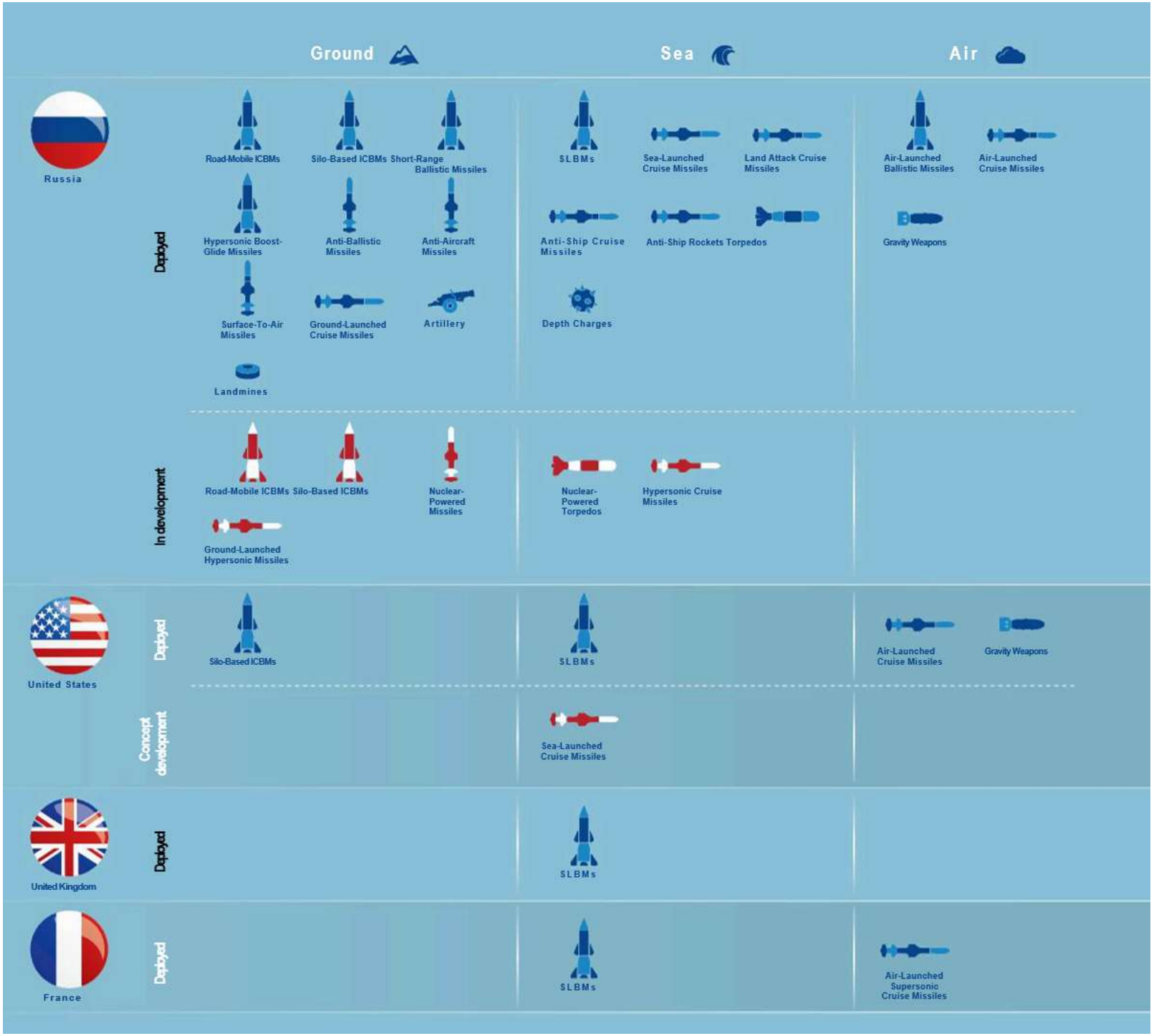
Survive, Novemb

ABOVE: the British government's **approved chart of nuclear weapons which notes that Russia has kept some nuclear weapons secret and not listed**, which is accompanied by a text which seems to be virtually a carbon-copy of Baldwin's government's 1935 announcement of Germany's rearmament threat, complete with the same demented disarmament-ain't-working-as-we-hoped complaint that: **"The UK has taken a consistent and leading approach on nuclear disarmament but not all states have followed. ... To help explain how some states are expanding their nuclear capabilities, NATO have prepared this graphic which uses Russia's expanding arsenal as an example of this trend and compares it with the systems held by the UK and fellow NATO nuclear weapons states France and the United States. It shows that Russia is significantly increasing the variety of nuclear capable weapons that it possesses. This is in contrast to the work that the NATO nuclear weapons states have undergone to reduce and maintain relatively modest arsenals since the Cold War ended. China also continues to modernise and expand its nuclear capabilities. ... It is wrong to say that the UK's nuclear deterrent is never used. The reality is that it protects us every hour of every day. By providing a credible and effective response option to extreme aggression, our nuclear deterrent reduces the likelihood of such an attack taking place."** (**No, mate: the point** ***is that we failed to deter the invasion of Belgium in 1914, and of Poland in 1939, leading to World Wars that murdered tens of millions, then we developed tactical nuclear weapons and used them to deter invasions from the 1950s onwards, too late to help Eastern Europe, but "better late than never".*** **Now we have none, due to 1990s disarmament activists being unopposed and using Glasstone's 1977 horseshit non-military lying nuclear effects manual, applying open desert unshielded thermal and blast data falsely to concrete cities that shield effects, instead of giving neutron bomb effects data for invading tanks and troops! We need change tactics urgently or risk costly, bloody escalations.**)

Ambiguity. Foreign Secretary Edward Grey's lying *"it was the arms race wot done it, honest"* excuse after refusing to credibly deter WWI in 1914 - because he wouldn't tell Germany in advance whether the invasion of Belgium would trigger Britain to declare war (the Cabinet couldn't make up its mind until too late to credibly deter Germany), was the ambiguous recipe for arms race-avoiding disaster which Chamberlain and other appeasers followed in the 1930s. Providing that arms industry contracts corruption can be carefully minimised, as in the West in WWII and the Cold War, arms races have historically proved to be far more damaging to dictatorships than to Democracies! You have to escalate an arms race until the opponent is bankrupt, the opposite of 1930s unilateral disarmament which leads to world war and genocide.

Herman Kahn's 1960 RAND Corporation paper P1888-RC, ***The nature and feasibility of war and deterrence*** **(a summary of a few key point in his book of the same year, "On thermonuclear War", but better organized and briefer)** states Malenkov introduced the mutual assured destruction anti-war deterrence concept to Russia, before he was replaced by Khrushchev who took a very different view, repeatedly threatening nuclear war against Eisenhower's defense of West Berlin, even before Russia had the nuclear superiority in clean high neutron output tactical weapons it has today:

"Even mutual belief in the automatic annihilation theory can still lead to trouble; the invitation to blackmail of the Munich type [*Hitler threatened retaliation if his invasion of Sudetenland was interferred with in 1938, leading to appeasement which effectively invited*


Ground
Sea
Air
Russia
Deployed
Road-Mobile ICBMs
Silo-Based ICBMs
Short-Range Ballistic Missiles
Hypersonic Boost-Glide Missiles
Anti-Ballistic Missiles
Anti-Aircraft Missiles
Surface-To-Air Missiles
Ground-Launched Cruise Missiles
Artillery
Landmines
SLBMs
Sea-Launched Cruise Missiles
Land Attack Cruise Missiles
Anti-Ship Cruise Missiles
Anti-Ship Rockets
Torpedos
Depth Charges
Air-Launched Ballistic Missiles
Air-Launched Cruise Missiles
Gravity Weapons
In development
Road-Mobile ICBMs
Silo-Based ICBMs
Nuclear-Powered Missiles
Ground-Launched Hypersonic Missiles
Nuclear-Powered Torpedos
Hypersonic Cruise Missiles
United States
Deployed
Silo-Based ICBMs
SLBMs
Air-Launched Cruise Missiles
Gravity Weapons
Concept development
Sea-Launched Cruise Missiles
United Kingdom
Deployed
SLBMs
France
Deployed
SLBMs
Air-Launched Supersonic Cruise Missiles

him to invade the entirety of Czechoslovakia and then Poland the next year, triggering a world war] ... **Would only an insane man initiate a thermonuclear war? ... a war might start as a result of an *accident, some miscalculation, or even irresponsible behavior***

[EMPHASIS ADDED; Kennedy used Kahn's words here in his May 1961 civil defense fallout shelters implementation speech, and this point about irresponsible behaviour by the Kaiser, Hitler and Stalin in jointly invading Poland from different sides in 1939, the Pearl Harbor attack plan, etc., is also emphasised as the key risk of global nuclear warfare in Sir John Hackett's book *The Third World War* and is especially relevant to a dictator cornered by financial debt pressures like Hitler, medical issues like Anthony Eden's perforated bowel agony during the Suez Crisis of 1956, Chamberlain's cancer in 1940 which nearly put appeaser Lord Halifax into power instead of gung-ho adventurer Churchill - whose apparent eventual success actually owes a very great deal to Hitler's decision to invade it's partner in the September 1939 Polish invasion, Russia, on 22 June 1941 and then to declare war on America following Pearl Harbor, deciding to follow the terms of his 27 September 1940 Tripartite Pact with Japan; factors that Churchill could not have relied upon when refusing to negotiate with Hitler, and didn't when formulating his contingency plans to move the UK government to Canada in the event of a successful invasion of the UK; the anti-nuclear Russian scam propaganda about "nuclear accidents" are a red herring unless actually deliberate false-flag "sink the Maine" excuses for escalation to try to end the war (if there is a nuclear accident it won't start a war unless it is a contrived plot to do so, as when implementing the Schlieffen Plan in 1914); there is also the continuing debate over whether Stimson was irresponsible in his advice to Truman that Hiroshima and Nagasaki were simply military targets, when they also contained large numbers of civilians, and this issue over the errors in advice even continued when kids were napalmed in the Vietnam war under the supposed control of Kennedy's successor, Democratic President Johnson].

"**... Russian civil defense manuals (dated 1958) indicate ... preparation for evacuation for improvised fallout protection ... While this would give us a sort of warning, we might not act on it** [*if you were US President, would you start WWIII by firing off nuclear missiles to try to stop Russians being evacuated from cities, to undermine your second strike deterrent? no? then you can see Kahn's argument clearly. don't try to argue that you can still knock-out Russian ICBMs in their silos or SLBMs in their subs by a counterforce strike if need be. you can't, because along with evacuating or taking to good city subway or basement shelters, they also protect their missiles by switching to launch-on-satellite-warning, so that by the time your missiles arrive after a flight time of 15-30 minutes, the silos are empty and the joy of knowing you may have blown up empty Russian silos is cancelled out by receiving their contents! face it: strategic deterrence is only promoted by the Russians because it is a farce that puts the West in a very weak position. Russia has 2000+ tactical nuclear weapons not subject to arms control crap for a very good reason; they have some credibility. We can't even use our most of our ICBM's or SLBM's on dial-a-yield as improvised tactical nuclear weapons against mobile SS25's because most can simply drive out of the 4psi peak overpressure overturning blast circle of American warheads while the latter are in flight, since none of the latter are target-tracking MARV's, but merely fixed coordinate capable MIRV's that can't change trajectory to follow a moving target like the SS25, get it? dictorships aren't always totally dumb*].

"**... the probability of such an attack by us is small, particularly because we have made negligible preparations to ward off, survive and recover ... Consider the bloody suppression of the Hungarian revolution [of 1956] ... Much pressure was applied for the United States to intervene. We didn't. In fact, there are reports we did exactly the opposite, broadcasting to the Poles and the East Germans not to rock the boat since no American aid was on the way.** [*now, compare then to now! Eisenhower in 1956 refused to help Eastern Europe in 1956 when the USA had an overwhelming nuclear superiority, less than a year since the first Russian megaton yield*

nuclear test! Today we are helping Ukraine against Russia when the nuclear situation has reversed. Russia now has fewer conventional weapons than us, but now has more nuclear weapons, of higher average yield, with both ICBMs and dedicated tactical weapons on mobile launchers for more flexible response. all thanks to Russian dominated "arms control".]

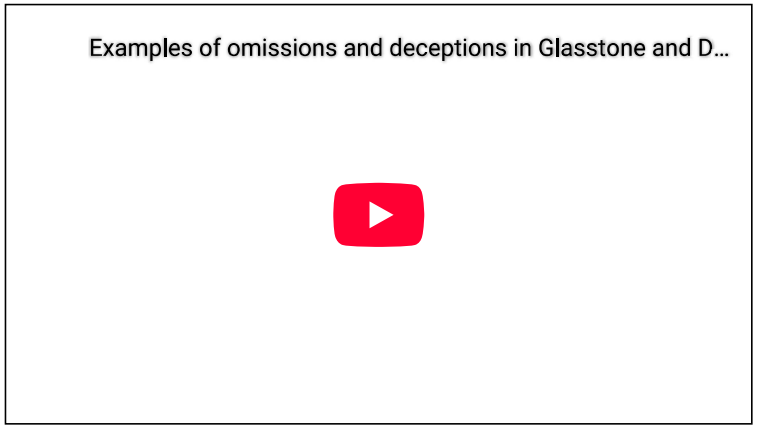
"**It is possible that a situation as potentially dangerous as the Hungarian revolt could arise again. We could get deeply, if involuntarily involved. ... In 1914 and 1939 it was the British who declared war, not the Germans. ... A thermonuclear balance of terror** [*Mutual Assured Destruction, the pseudo strategic policy fostered on us by pro Russian appeasement so-called "arms controllers and disarmers"*] **is equivalent to signing a non-aggression treaty ... no matter how provoking the other side may become. Sometimes people do not understand the full implications of this ... It should be clear that we would not restore Europe by our retaliation ... how many American dead would we accept as the cost of our retaliation? ... if the Soviets were to test our resolve by initiating a series of crises, they could probably find out experimentally, without running excessive risks, how much provocation we would take. No matter what our previously declared policy was, our actual policy and the possibilities would then be verified** [*e.g., last year Russian government representatives probed the possibilities of falsely claiming that Ukraine has nuclear weapons or radiological weapons, an absurd provocation alleged to be false flag or "Maine sinking" trick to "justify" starting a nuclear war*]

"**... the problem is to convince the Europeans if we wish to prevent appeasement as well as destruction** [*mate, that's precisely why France and the UK have their own nuclear deterrents; we're not stupid and are aware that historically it took the sinking of the Lusitania and Pearl Harbor to bring America into WWI and WWII, respectively, after the French and the UK had been fighting for years. bits of paper such as the NATO treaty, or for that matter the 30 September 1938 German-British signed peace collaboration war-avoiding pact, are easily ignored under stress. so it's better to ensure that Western deterrence has multiple buttons to make it really, really credible in Russian eyes.*] ... **One of the most important and yet the most neglected elements of the retalitory calculation is the effect of the Russian civil-defense measures. The Russians are seldom credited with even modest preparedness in civil defense. ... This is not only ridiculous, it is also symptomatic of the lack of realism and the prevalent tendency towards undesestimating the enemy. ... the Russians might at some point evacuate their city populations ... they fought a war *after* the Germans had destroyed most of their existing military power ... Moreover, since 1931 they have had a vigorous program to disperse their industry ... the calculation in which one looks at a U.S. first strike in retaliation for Russian provocation is probably more relevant in trying to evaluate the role that the offense and defense play in affecting some important aspects of foreign policy. Under this assumption, if we have even a moderate non-military defense program, its performance is likely to look impressive to the Russians ...**"

[*this is precisely why Kennedy, in his 25 May 1961 "urgent national needs" speech to a joint session of Congress reversed Eisenhower's mad ban on American fallout shelters in public building basements in cities, and implemented Kahn's plan, despite James Roy Newman's malicious and lying hate rant against Herman Kahn in the March 1961 pseudo* Scientific American. *Kennedy also authorised testing of the neutron bomb tactical deterrent plan, devised by Kahn's friend and fellow RAND Corp physicist Sam Cohen, employing the low-yield, relatively-clean Dove and Starling devices developed by Livermore for peaceful ends. Kahn in his longer book of 1960, On Thermonuclear War goes even further against high-yield nuclear weapons by analyzing the absurdity of the "Doomsday" bomb: the bottom line is that Hitler actually made such a WMD in the form of 12,000 tons of tabun nerve agent, which proved useless to deter an invasion, because we had more rubber than the enemy for gas masks (defence) and we could retaliate with mustard gas, anthrax, etc. So*

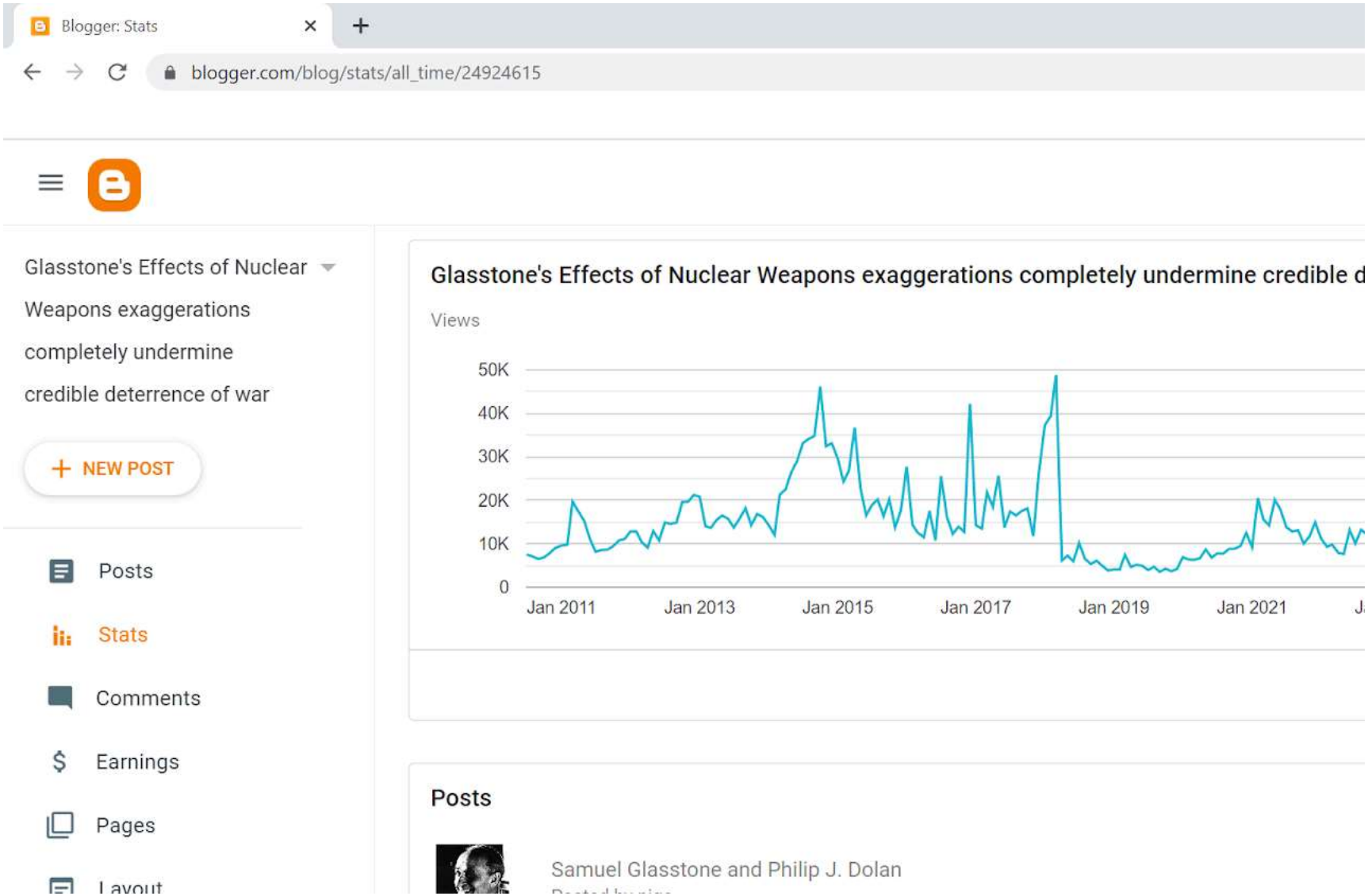
Hitler never loaded 12,000 tons of tabun into his bombers, V1 cruise missiles (150 miles range) and V2 rockets (200 miles range). Even in WWII, therefore, the myth WMD's were debunked.

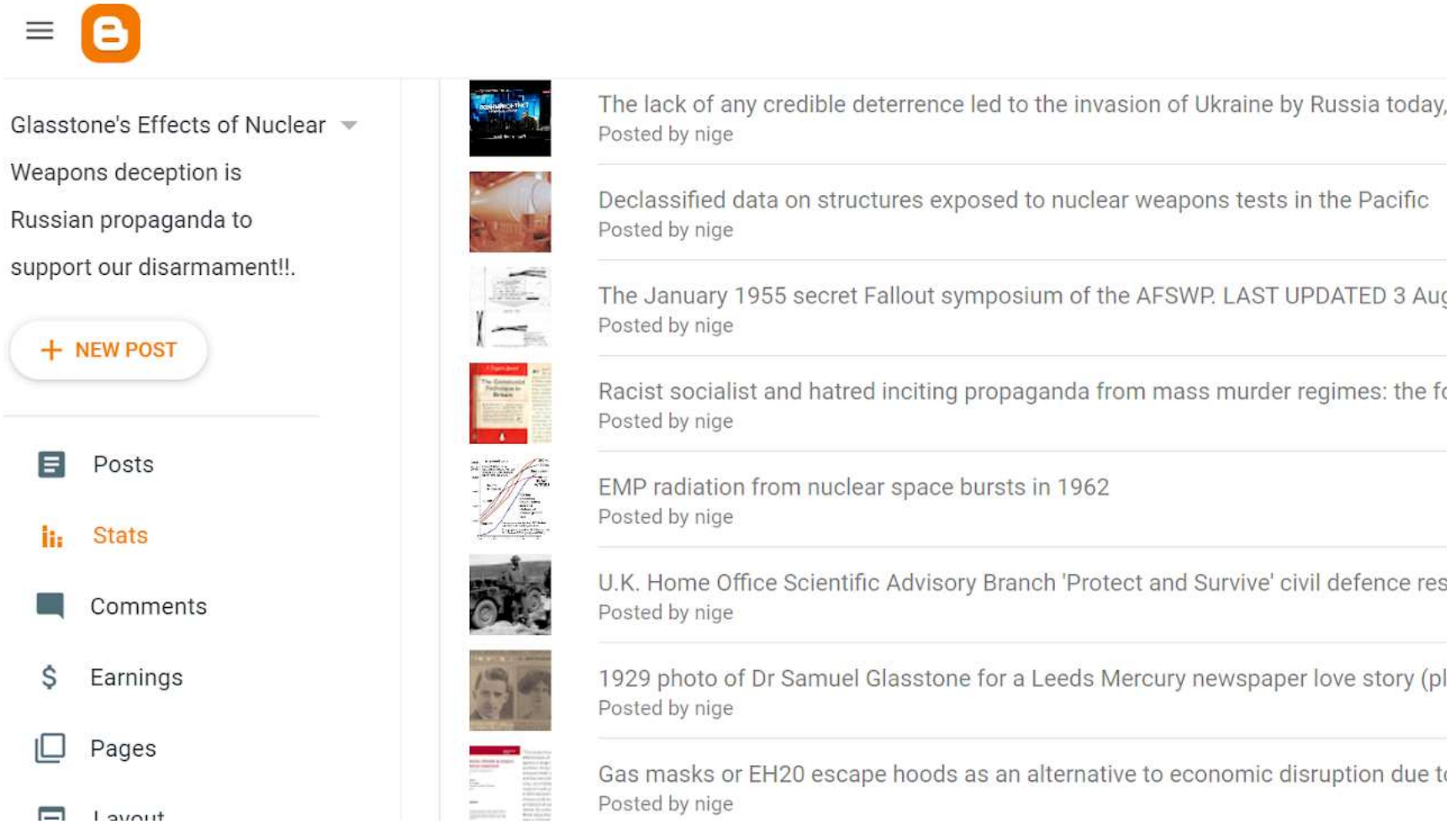
If you divide Hitler's 1945 stockpile of 12,000 tons of nerve agent tabun into the lethal dose of tabun per person (less than 1 mg, i.e. 10^{-9} ton), you see that according to the kind of statistical nonsense "overkill theory" used with a trembling voice in TV and newspaper "arms controller" articles to get funds, Hitler in 1945 possessed enough tabun to kill 12,000/(10^{-9}) ~ 10^{13} people, which is obviously cause "arms controllers" to faint, because if true it's a thousand times more than entire world's population! So the loons can claim: "Hitler could have theoretically over-killed the entire world's population by a thousand times in 1945 using his 12 kt of tabun!" But it proved historically as useless to deter our invasion of Germany as our strategic nuclear weapons were to deter Russia's invasion of Ukraine, because of retaliation risks, defences, and exaggerations (unless you use gas in a the Nazi preferred technique of the sealed gas chamber; a fact the Nazis knew all too well from their use of non-persistent Zyklon B aka hydrogen cyanide). Kahn discovered you need a credible deterrent and setting off the Doomsday bomb (whether nerve agent, cobalt or gigaton H-bomb), is just not credible to defend your borders. ***Nobody can make a credible deterrent out of an incredible action.*** *BTW: These latter words ain't mine: they're a quotation from McNamara in his 1989 UK Channel 4 documentary titled, "The nuclear age: the education of Robert McNamara", where he summarises his (Vietnam war bombing failure to win) experiences, while only getting it half right: he correctly concludes that strategic nuclear deterrence is a load of incredible crap, but foolishly tries to then claim that going back to 1930s disarmament and Russian appeasement is a sure fire way to avoid another world war.*]"



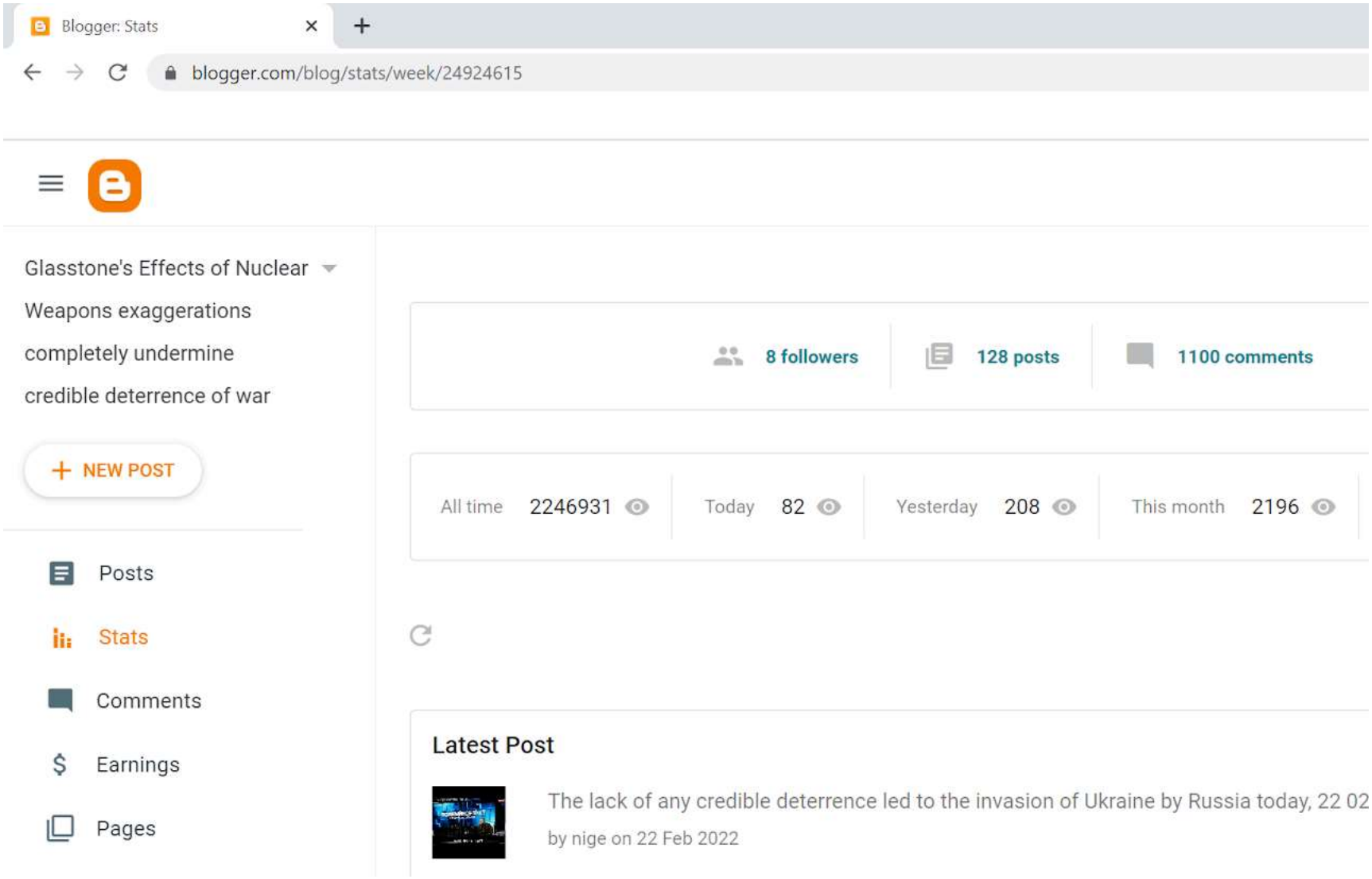


ABOVE: 11 May 2023 Russian State TV Channel 1 nuclear testing and nuclear bombing of UK - threats and abuse. Since 2006 we've been dedicated to debunking anti-nuclear propaganda and promoting for how to deal with this situation safely and without war escalating appeasement, using PROVED techniques from the 1st Cold War which are opposed by Putin loving "arms controlling disarmers" who lie about nuclear weapons to try to brainwash the public just as gas war was used in the same way by similar folk to win "peace" prizes in the 1930s to help the Nazis commit genocide and world war. We need YOUR help by reblogging this post please!!! See:


Blogger: Stats
blogger.com/blog/stats/all_time/24924615
Glasstone's Effects of Nuclear Weapons exaggerations completely undermine credible deterrence of war
+ NEW POST
Posts
Stats
Comments
Earnings
Pages
Layout
Glasstone's Effects of Nuclear Weapons exaggerations completely undermine credible d
Views
50K
40K
30K
20K
10K
0
Jan 2011
Jan 2013
Jan 2015
Jan 2017
Jan 2019
Jan 2021
Posts
Samuel Glasstone and Philip J. Dolan



ABOVE: an update on results from getting the message out there as a result of 17 years of this blog. As of Saturday 13 May 2023, blogger statistics show over 2.2 million visits (no idea whether this is from 2006 or 2010; the blog began in 2006 but blogger do not give graphs of statistics going back to whe it began!), to this site, the "peaks" in the statistics occur in part it seems due to the reblogging of blog posts at places like **Military Story** and **The Next Big Future**. As stated in the previous post, the history of this blog began in World War Two when dad and his sister were evacuated as kids from Essex which was receiving bombing, to Devon. He contracted TB from contaminated milk as a child which left him emasculated, so was rejected for National Service, but went into the Civil Defence Corps instead, finding recruitment a disaster due to Russian lying propaganda that the UK government wouldn't debunk with its nuclear test data of shelters at Monte Bello. I was encouraged to go into physics by dad to try to do something, but most people in the media aren't interested in reality, just fashionable boring bigotry, celebrity, sophistry, lying and encouraging Russian aggression. Thomas Schelling in the 60s came up with



the theory of reversing the principles of war to win a Nobel prize for losing Vietnam, like liars Angell and Philip Noel-Baker who got Nobel prizes for starting WWII.

This "war game" subterfuge of "peace propaganda for universal love via Hitler the man of peace" is like this: claim, like Angell and Noel-Baker, that jaw-jaw is better than war, that all wars are nuclear accidents not the result of jaw-jaw, and you get a prize if you have sufficient celebrity status or academic prestige to use to command media attention, out-lying the other utopian idealists to climb the greasy pole of Nazi-supporting assholes, or you claim that by arms control parity and a surrender of tactical nukes to prevent credible deterrence

of Russia, plus refusing to escalate a war rapidly enough to demoralize the opponent into genuine surrender (hardly what happened in Vietnam 1975 or Afghanistan 2021 after "peace talks") - Thomas Schelling's epiphany for peace through negotiating with terrorists (plagarized from 30s Chamberlain, Angell, Joad, Noel-Baker, et al.) - then you are hailed a "wizard of armaggeddon" (Kaplan's term). Wow. You get a Nobel peace prize or better still, like Schelling, the Nobel economics prize for bankrupting your country! All you need to do is you get enough left wing thugs behind you by promising them peace on earth. (You used to also get the Lenin Peace Prize, like Minus Pauling, but maybe that's a bit outdated and stinks of shit too much, don't you know? Oh, and by the way, if anyone wants to bring up religious "be a Christian peacemaker" arguments regarding fighting evil dictators: **Jesus's message wasn't to marry Hitler for peace or even to live on your knees under Roman/Russian Dictatorship, but to**

"Think not that I am come to send peace on earth: I came not to send peace, but a sword." - Matt 10v34.)

Attempts to show that *some arguments, namely those in which both sides are honest and act in good faith,* can be resolved by negotiation, so "**by logical extension**" this proves negotiating with Hitler would have prevented a world war, are fake! Maybe the Nobel Peace Prize can be awarded for Mr Putin and Mr Zelensky to sign a compromise peace deal, maybe a "power sharing" deal like the Northern Ireland sort, where Crimea and Eastern Ukraine are shared between Kyiv and Moscow (and all the dead due to Mr Putin's illegal invasion are quietly ignored to reduce tensions as the two parties pop the Champaigne cork and celebrate)? Even if that "compromise" (note the quote marks) is somehow achieved, *a lot of innocent people will have been murdered needlessly due to the "disarmers" of both Ukrainian nuclear weapons and Western dedicated Cohen neutron bombs, deliberately causing the failure to credibly deter the invasion and war from breaking out, and we've been saying this long before Putin invaded. It's not "hindsight"!*


Н-23
РАССЕКРЕЧЕНО




РАССЕКРЕЧЕНО



Recently declassified high quality photos of the effects of the 1949 Russian nuclear test RDS-1 on

Extracts from Beria's № 163 final (28 October 1949) report to Stalin the 1949 Russian nuclear test data

Заключительный доклад Л.П.Берия И.В.Сталину о результатах испытания атомной бомбы

28 октября 1949 г.

Товарищу Сталину И.В.

Оптическими измерениями (произведенными при помощи специально сконструированных сверхскоростных фотокамер, дающих 600 000, 100 000 и 25 000 кадров в секунду, обычных кино- и аэрофотокамер, специальных спектрографов и других измерительных приборов, заранее установленных на дистанциях 1 800, 3 000 и 5 000 метров от центра взрыва)

(= Russia set up high speed cameras running at 600,000, 100,000 and 25,000 frames/second at 1.8, 3.0 and 5.0 km from ground zero to film fireball.)

Измерено, что поток теплового излучения взрыва составляет 4 % энергии деления всей массы плутония, составлявшей заряд атомной бомбы, испытанной 29 августа 1949 года.

(= The bomb's measured thermal yield was 4%.)

Gamma doses (R) гамма-лучей		Neutron doses (R) нейтронного		Reflected blast, tons/m^2 Давление отраженной ударной волны	
300 м	420 000	300 м	27 000 000	200 м	2 900 т/м^2
400 м	155 000	400 м	38 000	250 м	1 560
500 м	68 000	500 м	12 000	300 м	770
600 м	32 000	600 м	4 200	400 м	225
700 м	15 000	700 м	1 800	500 м	82
800 м	7 800	800 м	800	600 м	48
900 м	4 200			800 м	21
1 000 м	2 300	1 000 м	180	1 200 м	12,1
1 100 м	1 260			1 800 м	6,2
1 200 м	700	1 200 м	35	3 000 м	3,1
1 300 м	410			5 000 м	1,9
1 500 м	140				
1 600 м	80				

Действие взрывной волны на военную технику

Из всех видов боевой техники *наиболее уязвим* (самолеты): из 53 самолетов, установленных на опыт 500 до 4 000 метров, остались неповрежденными тол

Артиллерийское вооружение полностью разруше ров и значительно повреждено в радиусе 500 метро полного разрушения (*полного вывода из строя) тан* ним танкам в радиусе 350–500 метров нанесены силь

Воздушные *линии связи* сильно разрушены в рад бельные линии, проложенные на земле, в радиусе 50

(= Military effects:
Out of 53 aircraft exposed at 0.5 survived intact.
Field artillery and tanks were de and had significant damage out t
Ground-laid cables were destroy overhead cables were destroyed

***Animal Effects from Soviet Atmo Tests,* by V. A. Logachev and L. A Corporation, 2008, report ADA48 TR-07-38):**

"The medical/biological studie 8,000 experimental animals (c sheep, dogs, rabbits, guinea p basic ways to solve medical/b problems were by carrying ou that used animals in open are in military and civilian protect Animals were placed in more long-term structures, more th

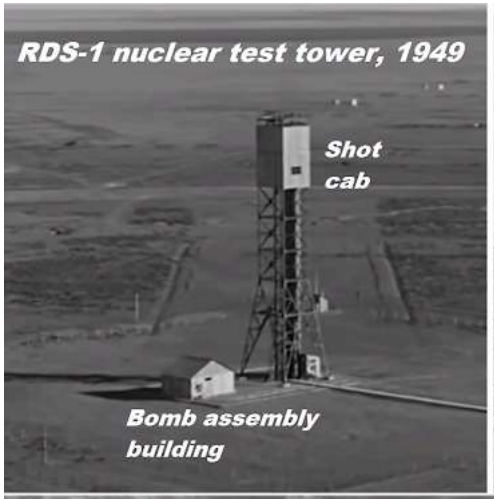
1 700 м	48	10 000 м	0,9
1 800 м	30		

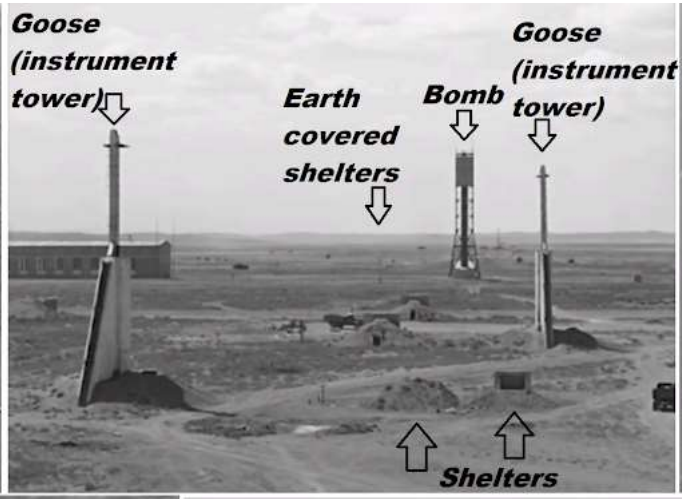
На основании принятой для взрыва тротила зависимости давления ударной волны от расстояния и веса заряда специалисты установили, что тротиловый эквивалент атомной бомбы испытанной 29 августа 1949 г. конструкции, равен 11 000 тонн тротила.

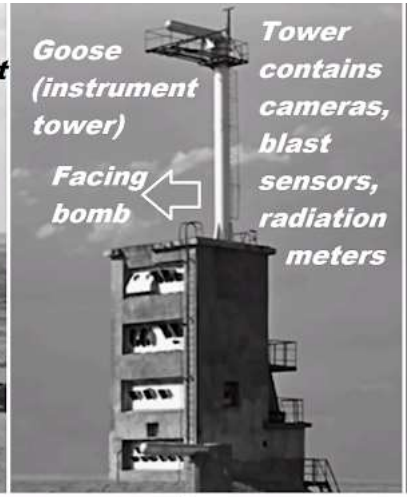
(= Bomb's BLAST yield partition was 11 kt of TNT.)

items (tanks, armored person
automobiles, aircrafts etc.), a
and wooden houses."

Page 36: at the 1.6 megaton 19
burns occurred to animals in ho



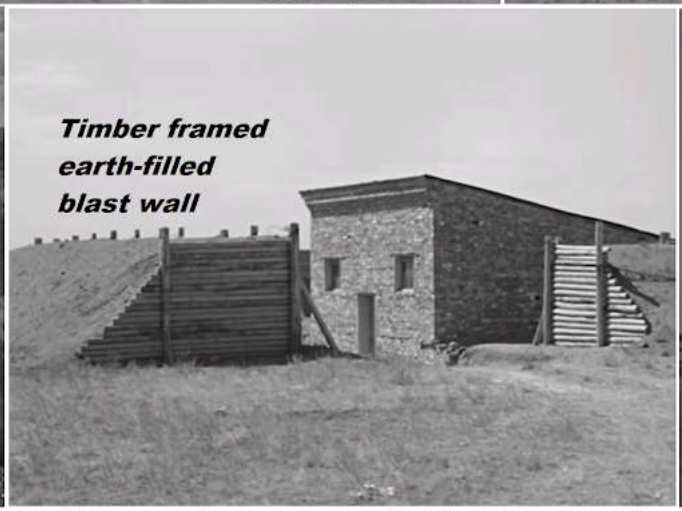








Trench field fortifications and bomb tower



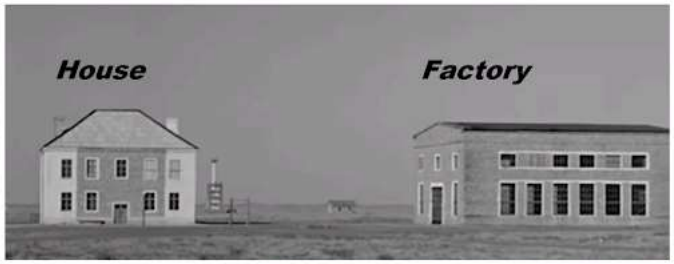
Building protected by earth-filled blast walls



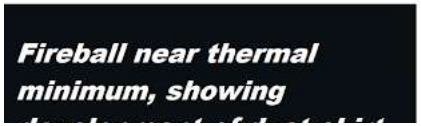
Entire brick house exposed





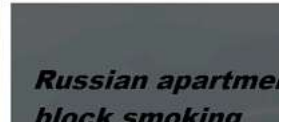




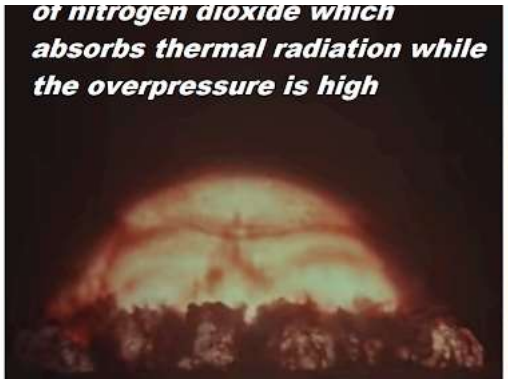






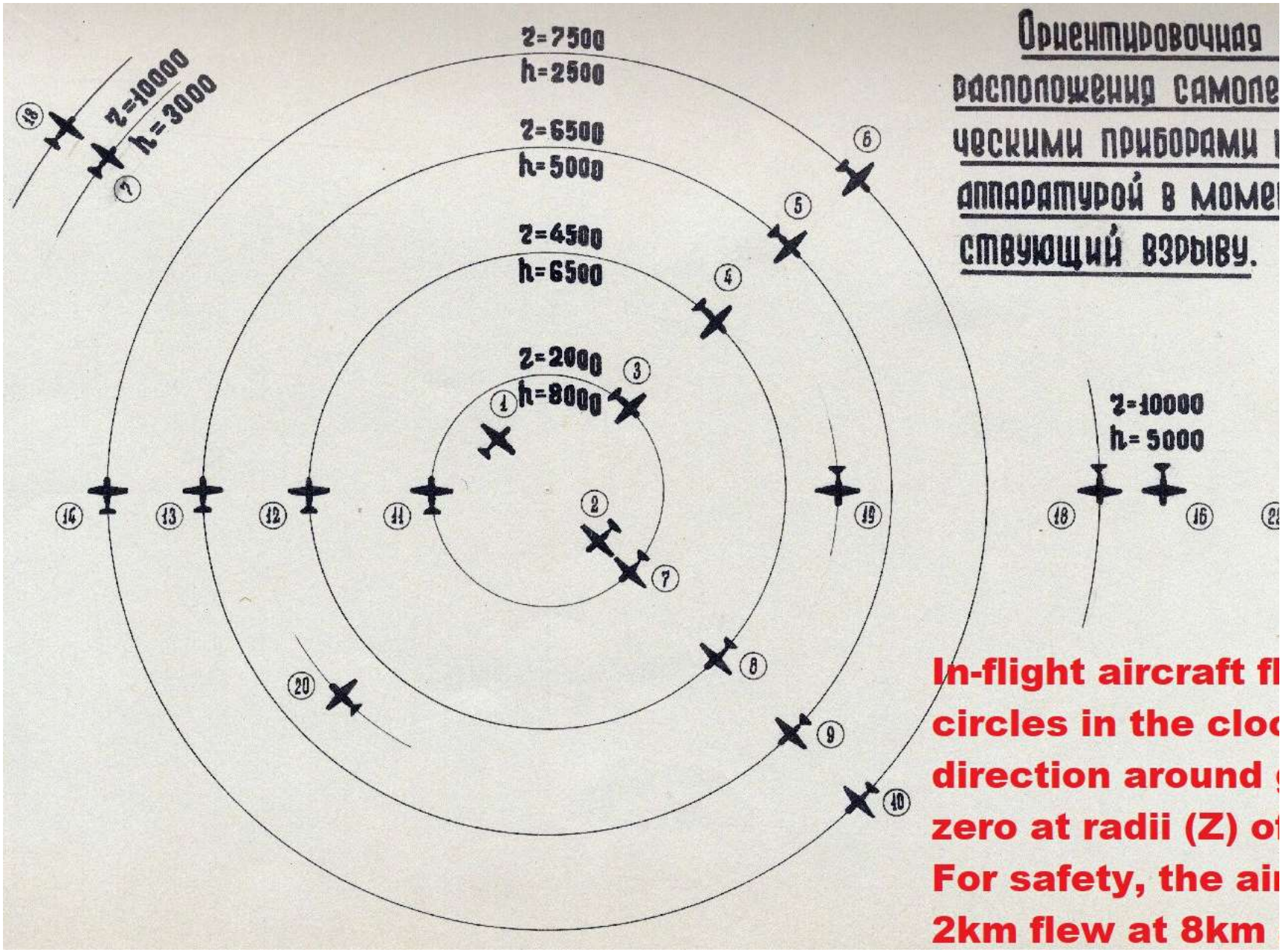



development of dust skirt
at base (thermally
popcorned sand billows
upward in precursor blast)

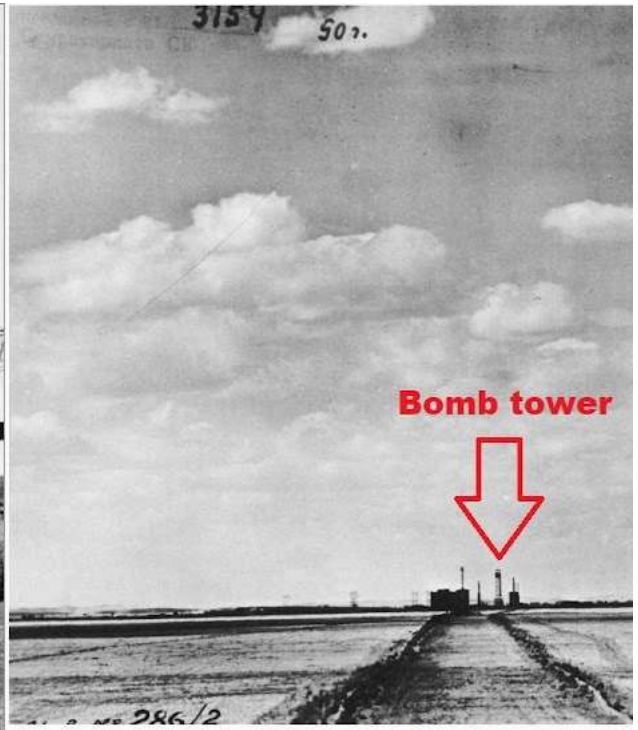

of nitrogen dioxide which
absorbs thermal radiation while
the overpressure is high


Factory
House


due to thermal
radiation flash


Ориентировочная
расположения самоле
ческими приборами
аппаратурой в моме
ствующий взрыву.
z=7500
h=2500
z=6500
h=5000
z=4500
h=6500
z=2000
h=8000
z=10000
h=3000
z=10000
h=5000
In-flight aircraft fl
circles in the cloc
direction around
zero at radii (Z) o
For safety, the ai
2km flew at 8km





29 August 1949 first Russian test c

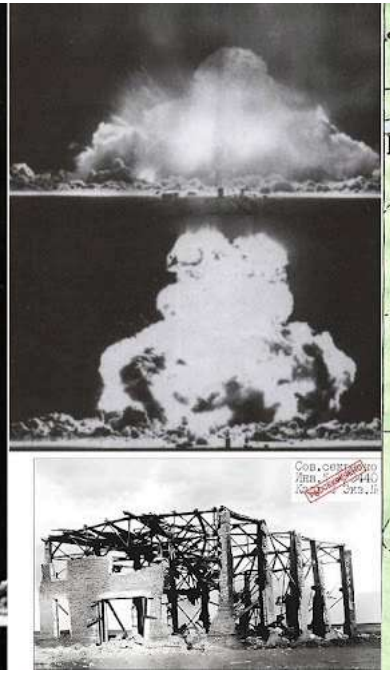
Right: 14 different target sectors or lines stretched out to distances of up to 10 km (6 miles) from the 29 August 1949 Russian 22 kt nuclear test tower. This Russian poster uses a non-linear distance



linear distance scale to show the ranges to which different items were exposed. Tanks were sector 5, out to 2 km in the South-West.



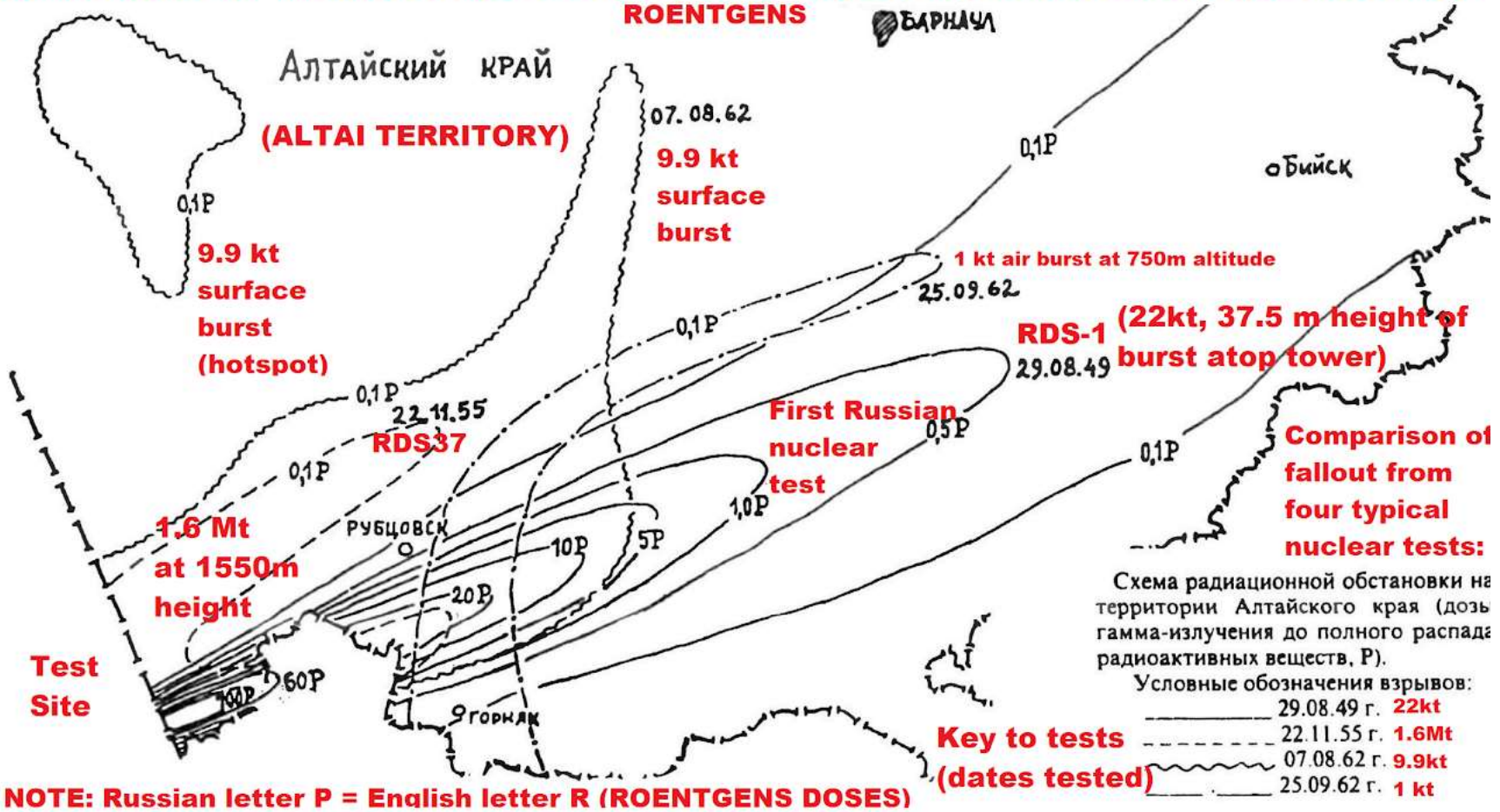






COMPARISON OF INFINITE TIME FALLOUT GAMMA DOSES OUTDOORS FROM RDS1 AND RDS37

ROENTGENS



NOTE: Russian letter P = English letter R (ROENTGENS DOSES)

CLOSE-IN GAMMA RADIATION (mR/HOUR) FROM ALL TESTS, DEC. 1955
SEMIPALATINSK NUCLEAR TEST SITE

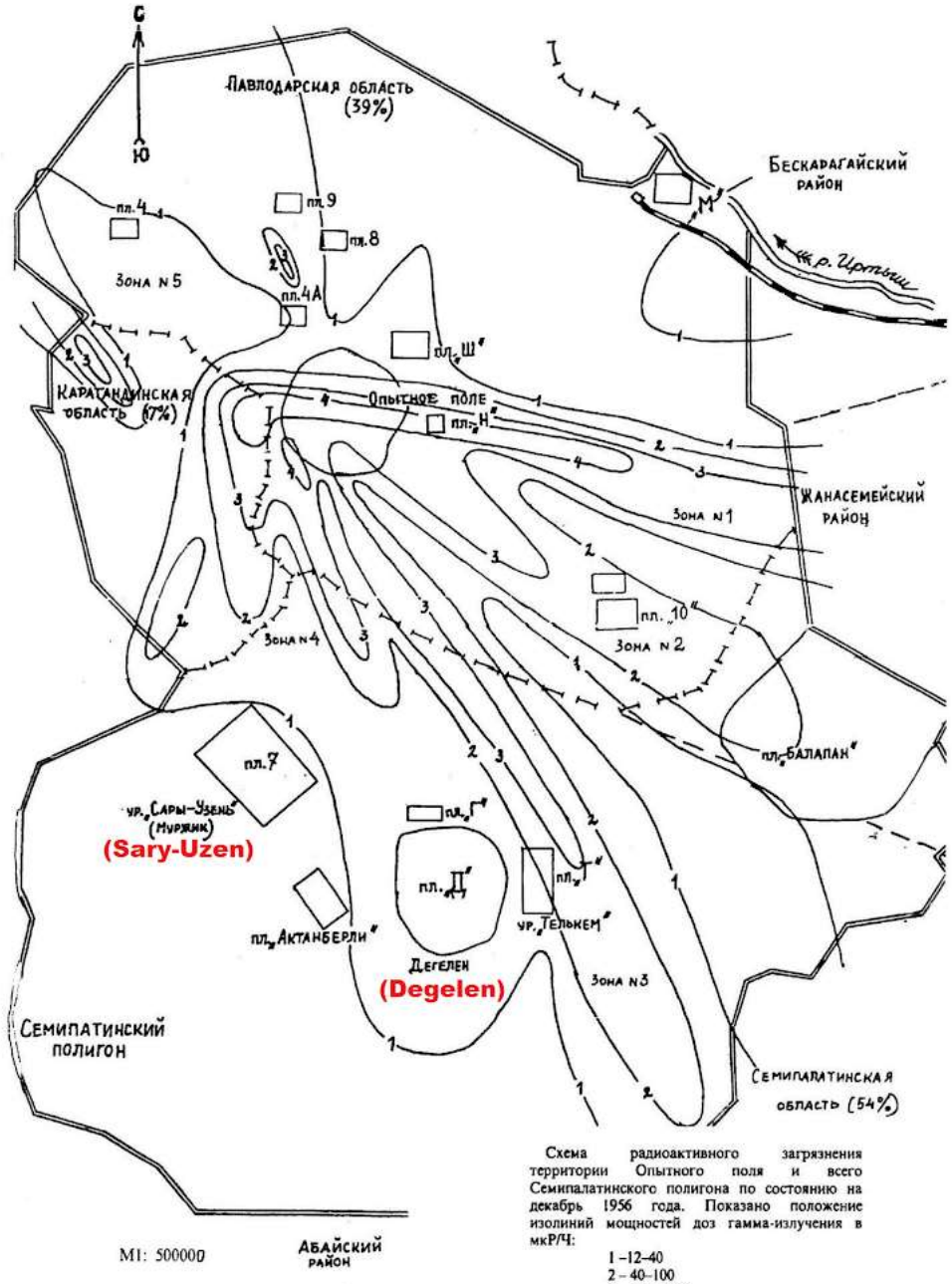
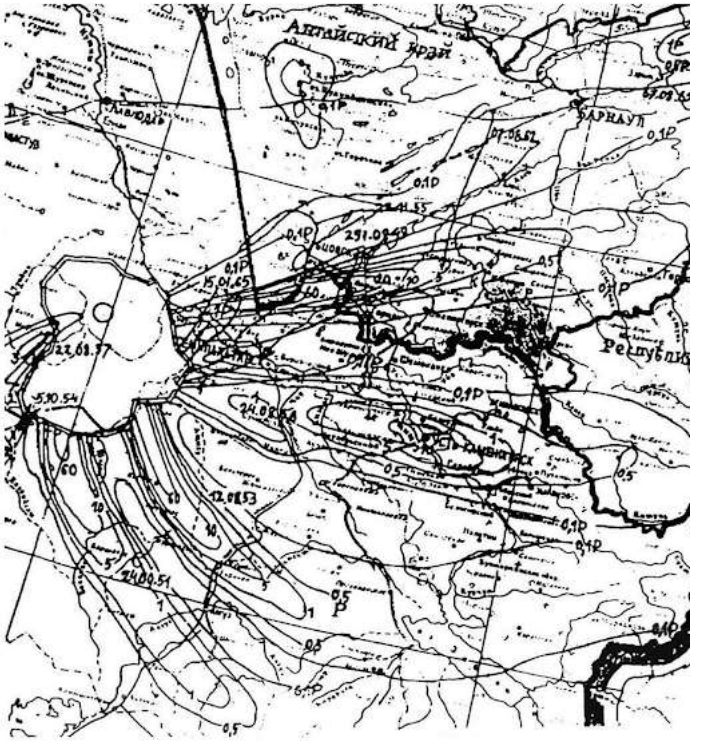


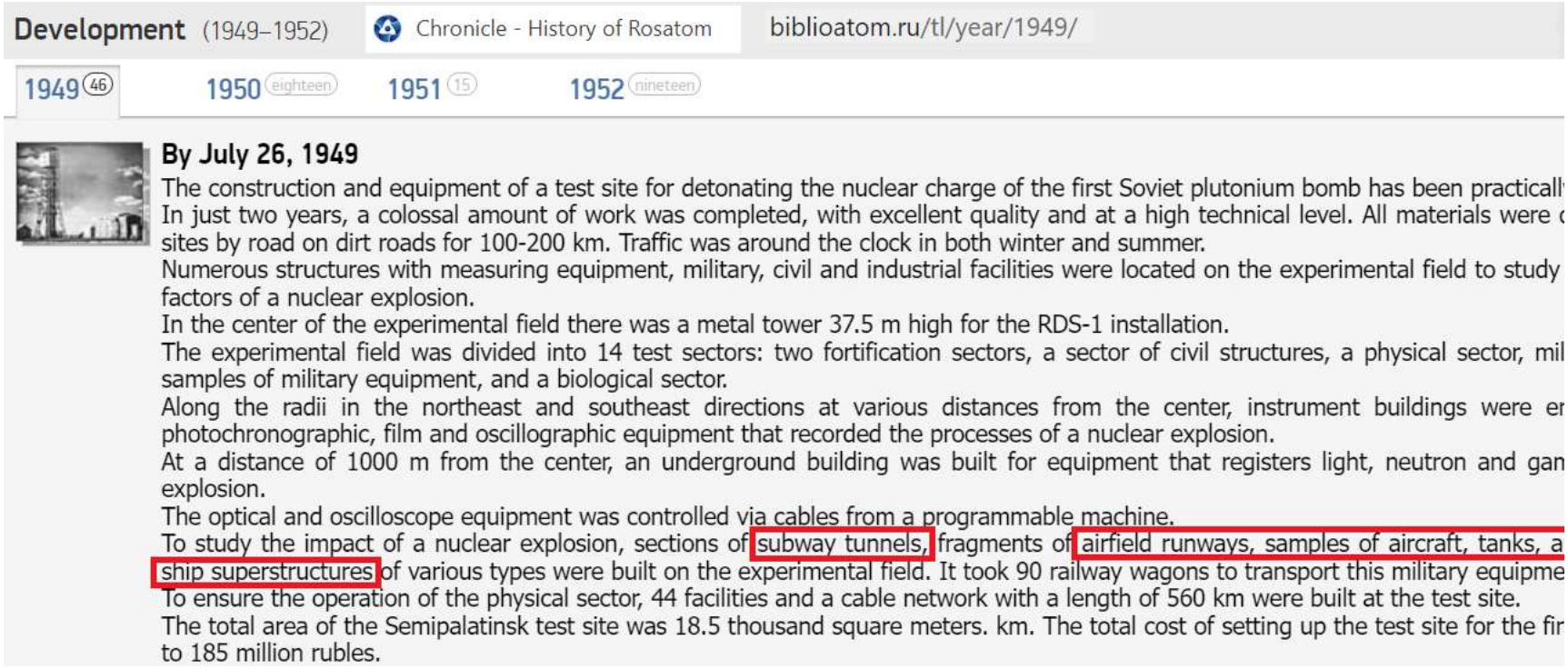
Схема радиоактивного загрязнения территории Опытного поля и всего Семипалатинского полигона по состоянию на декабрь 1956 года. Показано положение изолиний мощностей доз гамма-излучения в мкР/ч:

1 – 12–40
2 – 40–100
3 – 100–1000
4 – более 1000



**V. M. Loborev, et al., *Assessment o*
radioactive contamination of the A
nuclear explosions carried out at t
Test Site, Final Report of the Centr*
Institute of the Ministry of Defense*
Federation, 1992**







ABOVE: the Russian instrumentation and target array methodology on their first nuclear test (RDS1, 22 kt on a 37.5 m high tower, 29 August 1949; h**igh quality declassified 1949 test photos are taken from the 2018 Sarov Nuclear Weapons Museum brochure, linked here**) was far more extensive than any Western nuclear test ever conducted, and animals were successfully used to determine the protective factors of shelters and trenches against the combined blast and radiation environment, proof testing almost the entire Russian nuclear civil defense system (it continued to do this at later tests up to and including the 1.6 megaton air burst of 22 November 1955; **see the data summary in the DTRA commissioned report *Animal Effects from Soviet Atmospheric Nuclear Tests* by the Russians V. A. Logachev and V. A. Mikhalikhina of the VNIIEF, Sarov - the protective factor of any shelter or structure is simply obtained from the ratio of the percentage of animals surviving in a structure, compared to unprotected controls - which are unfortunately lumped together for different tests with varying yields and distance ranges to avoid secrecy here**). The cost of setting up the 1949

nuclear test site with its 14 target array sectors around ground zero out to 10 km radius was 185,000,000 rubles, including a 560 km cable network which was damaged by the unexpected EMP effect. Key American nuclear test effects data on simple trench and earth covered emergency shelters is still classified secret, since it comes within the bureaucratic province of military structures. America's secret EM-1, *Capabilities of Nuclear Weapons, Chapter 15, Damage to Structures,* revised in April 1993, Tables 15.17 and 15.18 in Northrop's *unclassified* 1996 compressed book summary, states that such 6x8 ft military command post and hardened-frame/fabric personnel shelters with 4 feet of earth cover, all require 30, 50 and 60 psi peak overpressure for 50% probability of light, moderate and severe damage, respectively. Northrop's *unclassified* Table 14.1, *Combat Ineffectiveness for Personnel in an Open Two-Man Foxhole (2 x 6 x 4.5 ft) side-on the blast wave* shows 50% combat ineffectiveness at 37 psi peak overpressure for a 0.01 kt and 29 psi for yields of 0.1 kt to 1 Mt (so the clean or enhanced neutron bomb is needed for credible deterrence, not just the low-yield option on high yield dial-a-yield weapons that produce trivial neutron doses). These American nuclear test data derived statistics are similar to **T. K. Jones' figures** - discussed later in detail in this blog post - for the excellent nuclear war survival of Russian expedient blast/fallout shelters. Figure 15.62, *Basic vulnerability chart for tunnels in rock,* however, shows that tunnel shelters in granite/hard rock, with a highly deformable composite lining between the rock and the tunnel lining (**bags full of aluminium metal chips, for instance, were used by T. K. Jones to shock-protect sensitive equipment in successful tests, e.g. a motorbike driven away after surviving a peak blast overpressure of 600 psi, which would be in the crater for a surface burst and well over the peak at ground zero from the air bursts that optimised low pressure area damage to wooden houses at Hiroshima and Nagsaki**) survive at just 650 feet or 200 metres from 1 megaton yield.

DEFENSE TECHNICAL INFORMATION CENTER
AD956120

DNA 5640F

CONCEPTS FOR PROTRACTED WAR

Boeing Aerospace Company
P.O. Box 3999
Seattle, Washington 98124

1 December 1980

DTIC
ELECTE
SEP 04 1992
S A D

ADA 956120

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[redacted] Table 5-11. Number of warheads n

SHELTER TYPE AND TYPICAL INSTALLATION	[redacted]
Wood Shelters	
USAF base	
Navy shipyard	
Army Base	
Steel Shelters	
USAF base	
Navy shipyard	
Army base	

[redacted] For example, Figure 5-5 shows measures event to protect a minibike emplaced at the 600 range. Figure 5-6 shows the minibike being reco metal damage. In fact, it was immediately starte

[redacted] Figures 5-7 and 5-8 show a grinder bein the FOAM HEST 2 (Reference 9) event which simul environments at the 900 psi (6.2 MPa) range from grinder received only superficial damage.

[redacted] In almost all of these tests aluminum operations were used as the crushable material available. Foams with well-defined properties wo rial for weapon protection. Figure 5-9 shows the ing weapons with foam and soil. The thickness depend on the expected soil motion and thus on we shown are expected to protect a weapon or other it environments produced at the 1000 psi (6.9 MPa) yield of about 1 Mt. (Additional field tests woul

Blast tests led by TK Jones of Boeing proved that cr aluminium chips absorb blast energy, protecting a



ABOVE: Left wing Observer aka Sunday Guardian promoting nuclear shelters on 4 July 1982. But are such shelters necessary? New research shown in this post proves that if people can simply descend to the lower floors in the attack warning period (behind tables to

shelter from window glass) or to the basements or underground car parks of modern buildings which survive radiation and blast effects far better than the wooden homes in Hiroshima in 1945 (see **diagram below from EM1)**), the mutual shielding from the "concrete and steel jungle" in a modern city will screen out the radiation and will reduce blast wind and debris hazards. Russia has such basement shelters and tunnel shelters already in cities, as well as evacuation plans and nuclear tested expedient blast and fallout shelters for dispersing the people in a crisis. The American born Lord Chancellor of England, lawyer Lord Lyndhurst (John Singleton Copley, born in Boston, Massachusetts, in 1772) said in his House of Lords Speech, *Russia and the Crimean War* on 19 June 1854:

"The whole series of her history, from the earliest period to the present day, has been one of long-continued fraud and perfidy, of stealthy encroachment, or open and unblushing violence - a course, characteristic of a barbarous race, and whether at St Petersburg or Tobolsk, marking its Asiatic origin. To go back to the reign of the Empress Catherine, we find her policy in one striking particular corresponding with that of the present Emperor, which policy can be traced back to the Czar Peter. She ostentatiously proclaimed herself the Protector of the Greek Church in Poland, formented religious dissentions among the people, **and under pretense of putting an end to disorders which she herself had created, sent a large military force into the country ... With a like policy in the Crimea, the independence of which country had been settled by treaty, she set up a prince whom she afterwards deposed, and, amidst the confusion thus created, entered the country with an army under one of the most brutal and sanguinary of her commanders, and, having slaughtered all who opposed her, annexed this important district permanently to the Russian Empire. ... I pass over the extensive conspiracy in which Russia was engaged with Persia [IRAN] ... against this country ...** These scandalous transactions were strenuously denied by Count Nesselrode to our minister at St Petersburg, but were afterwards conclusively established by Sir Alexander Burnes and by our consul at Candahar. ...we ought not to make peace until we have destroyed the Russian fleet in the Black Sea and razed the fortifications ... That she will not remain stationary we may confidently predict. Ambition, like other passions, grows by what it feeds upon. Prince Lieven, in the despatch to Count Nesselrode, to which I before alluded, says: 'Europe contemplates with awe this colossus, whose gigantic armies wait only the signal to pour like a torrent upon her kingdoms and states'. If this semi-barbarous people, with a government of the same character, disguised under the thin cover of a showy but spurious refinement ... despotism the most coarse and degrading that every afflicted mankind - if this power with such attributes should establish itself in the heart of Europe (which may Heaven in its mercy avert!) it would be the heaviest and most fatal calamity that could fall on the civilized world." (**For complete validation of this claim a century later, see WWIII nuclear war threat of Khrushchev, made even before Russia had a nuclear superiority, in 1959 - linked below - and Eisenhower's autistic mimickery of Chamberlain's autistic appeasement of Hitler for "peace" on 30 sept '38! The situation is far worse now because there really is a missiles, tactical nuclear weapons, nuclear warhead designs "implementation gap" today in which we are behind, *which makes Russian threats credible, unlike 1959!*)**

Your generals talk of maintaining your position in Berlin with force. That is bluff. If you send in tanks, they will burn and make no mistake about it. If you want war, you can have it, but remember, it will be your war.

Khrushchev, June 23, 1959

Q: What do you think of talk such as this?

THE PRESIDENT: Well, I don't think anything about it at all. I don't believe that responsible people should indulge in anything that can be even remotely considered ultimatums or threats. That is not the way to reach peaceful solutions.

(TEXTBOOK AUTISM)

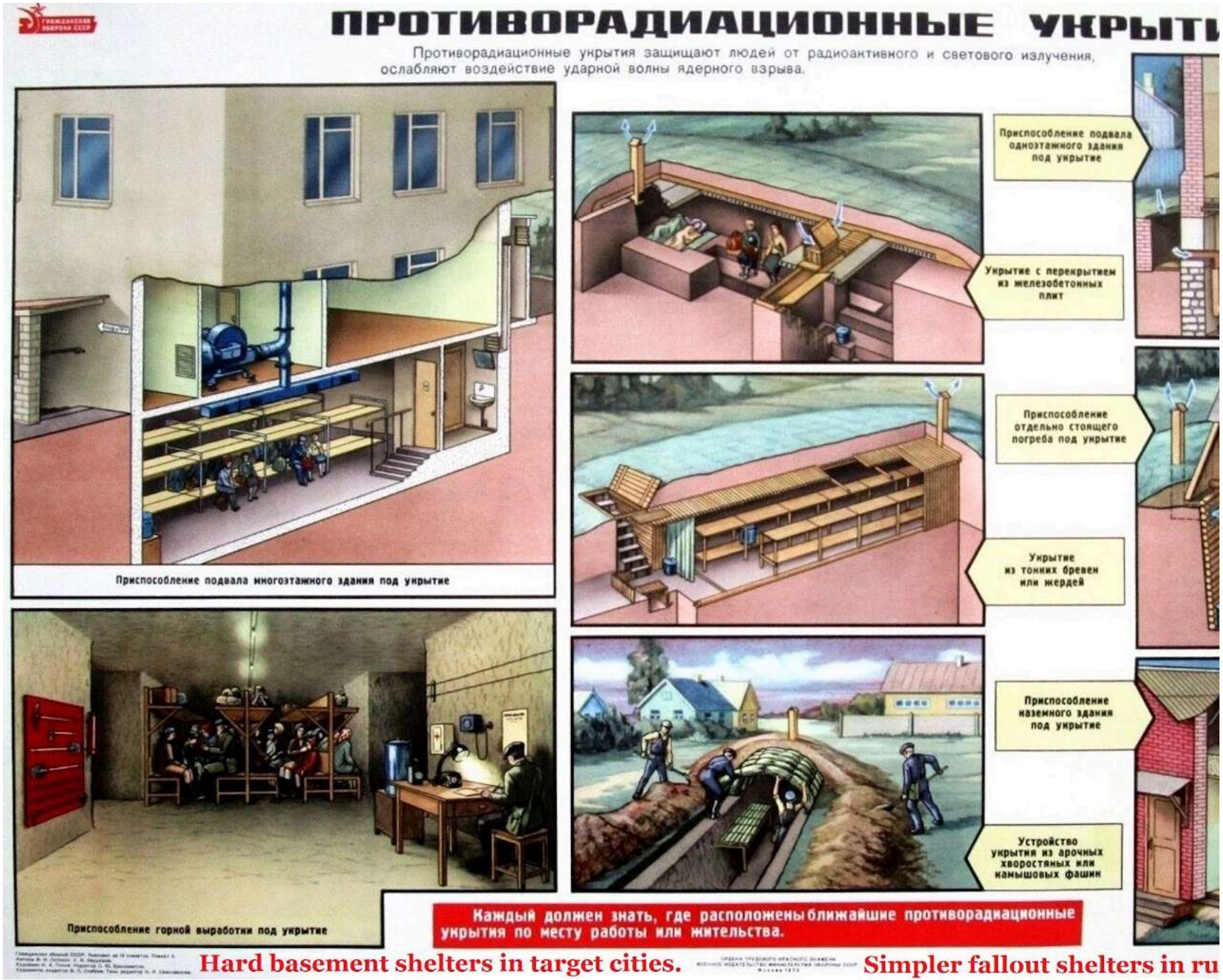
Eisenhower, July 8, 1959

Khrushchev power by re his predeces anti-war ag instead usin style blackn deter Ameri opposing its of Eastern E Eisenhower Chamberlai mindset, ref prepare she wanting to

50% PROBABILITY OF SEVERE DAMAGE (COLLAPSE) FOR CITY BUILDINGS (SOURCE: NORTHROP, EM-1 NUCLEAR WEAPON EFFECTS HANDBOOK, 1996, TABLE 15.6, AND FIGURES 15.10, 15.18, SURFACE BURSTS)

	BUILDING VALUES (NOMINAL)			Peak overpressure (psi)	
STRUCTURE	Oscillation Period (ms)	Static yield resistance (psi)	Ductility ratio (u)	20 KT	1MT
15.2.2, 3-8 Story Reinforced Concrete Building (Concrete Walls)	300	3.0	7.5	15	12
15.2.10, 3-10 Story Steel Frame Building	600	2.0	10	23	13

THE ORIGIN SECRET EM-1 SHOWS THA MODERN CI BUILDINGS REQUIRE FA HIGHER PEA OVERPRESSU EVEN AT MEGATON YIELDS, THAN THE WOODEN HO IN HIROSHI FOR COLLAP

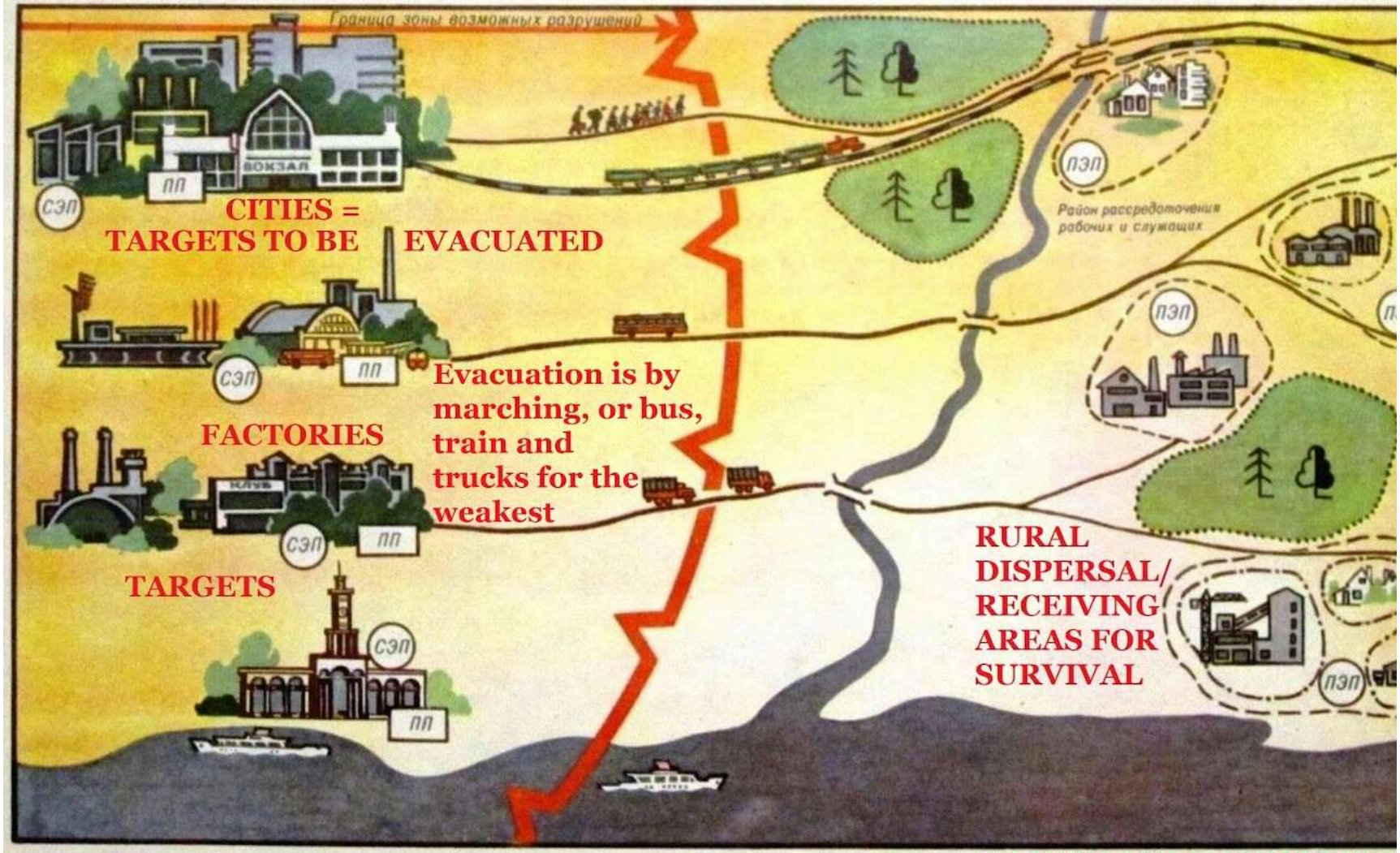

ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИ
Противорадиационные укрытия защищают людей от радиоактивного и светового излучения, ослабляют воздействие ударной волны ядерного взрыва.
Приспособление подвала многоэтажного здания под укрытие
Приспособление горной выработки под укрытие
Приспособление подвала одноэтажного здания под укрытие
Укрытие с перекрытием из железобетонных плит
Приспособление отдельно стоящего погреба под укрытие
Укрытие из тонких бревен или жердей
Приспособление наземного здания под укрытие
Устройство укрытия из арочных хворостяных или камышовых фашин
Каждый должен знать, где расположены ближайшие противорадиационные укрытия по месту работы или жительства.
Hard basement shelters in target cities.
Simpler fallout shelters in ru


Гражданская оборона СССР. Комплект из 19 плакатов. Плакат 5.
ПРОСТЕЙШИЕ УКРЫТИЯ И БЫСТРОВОЗВ
УБЕЖИЩА С УПРОЩЕННЫМ ОБОРУДОВ
ПРОСТЕЙШИЕ УКРЫТИЯ
Простейшие укрытия защищают людей от воздействия светового излучения и ослабляют воздействие ударной волны и проникающей радиации.
Строительство перекрытой щели производится в такой последовательности: сначала она отрывается и оборудуется, затем перекрывается
EARTH-COVERED TRENCH SHELTER
240
100-120
50-60
20
150-200
50
80
Перекрытая щель с одежды стен
БЫСТРОВОЗВОДИМЫЕ УБЕЖИЩА С УПРО
Быстровозводимые убежища с упрощенным оборудо
всех поражающих факторов оружия массового поражени
BASEMENT SHELTER
Приспособление подвала административного здания
PREFABRICATED CONCRETE PIPE SHELTER DESIGN:
Песчаный фильтр-поглотитель
Емкости с запасом воды
Защитно-герметическая деревянная дверь
Места установки выносных емкостей
Быстровозводимое убежище из железобетонных труб большого диаметра
Осевой вентилятор для подачи воздуха в режиме чистой вентиляции
UNDERROAD PEDESTRIAN CROSSING SUBWAY SHELTERS WITH REINFORCED CONCRETE SLAB ROOFS
Приспособление подземного перехода под быстровозво
Каждый должен уметь строить простейшие укрытия и быстровозводимые убежища.

РАССРЕДОТОЧЕНИЕ И ЭВАКУАЦИЯ НАСЕЛЕНИЯ = Evacuation and dispersal of the

РАССРЕДОТОЧЕНИЕ И ЭВАКУАЦИЯ – ЭТО ОРГАНИЗОВАННЫЙ ВЫВОД И ВЫВОЗ НАСЕЛЕНИЯ ИЗ ГОРОДОВ И РАЗМЕЩЕНИЕ ЕГО В ЗАГОРОДНОЙ ЗОНЕ, ПРОВОДИМЫЕ В ПЕРИОД УГРОЗЫ НАПАДЕНИЯ ПРОТИВНИКА, С ЦЕЛЬЮ СНИЖЕНИЯ ПОТЕРЬ СРЕДИ НАСЕЛЕНИЯ В СЛУЧАЕ ПРИМЕНЕНИЯ ПРОТИВНИКОМ ОРУЖИЯ МАССОВОГО ПОРАЖЕНИЯ.

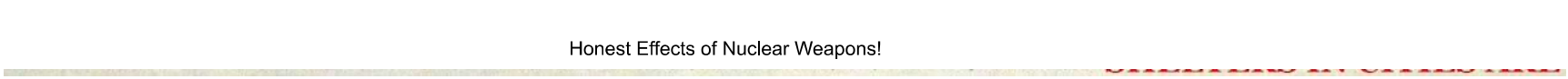
РАССРЕДОТОЧЕНИЕ И ЭВАКУАЦИЯ ПРОВОДЯТСЯ В КРАТЧАЙШИЕ СРОКИ КОМБИНИРОВАННЫМ СПОСОБОМ С ИСПОЛЬЗОВАНИЕМ ВСЕХ ВИДОВ ТРАНСПОРТА, НЕ ЗАНЯТОГО ВОЕННЫМИ И
СТВЕННЫМИ И ХОЗЯЙСТВЕННЫМИ ПЕРЕВОЗК
РАССРЕДОТОЧЕНИЕ И ЭВАКУАЦИЯ РАБОЧИХ
СЕМЕЙ ОСУЩЕСТВЛЯЕТСЯ ПО ПРОИЗВОДСТВ
ЦИЯ НАСЕЛЕНИЯ, НЕ ЗАНЯТОГО НА ПРОИЗ
ПО ТЕРРИТОРИАЛЬНОМУ ПРИНЦИПУ (ПО М
РАВЛЕНИЯМИ И ЖИЛИЩНО-ЭКСПЛУАТАЦИО
ОБЫЧНО ЭВАКУИРУЮТСЯ ВМЕСТЕ С РОДИТЕ



СОКРАЩЕНИЯ НА СХЕМЕ:

СЭП – сборный эвакуационный пункт; ПЭП – приемный эвакуационный пункт; ПП – пункт посадки

KEY WORKERS ARE NOT I
SHELTERS IN CITIES ARE




Гражданская оборона СССР. Комплект из 19 плакатов. Плакат 9.
ГРАЖДАНСКАЯ ОБОРОНА СССР
ЭВАКУАЦИЯ НАСЕЛЕНИ
Эвакуацией населения называется организованный вывоз (вывод) населения из городов, населенных пунктов в загородную зону в случае угрозы применения противником оружия массового поражения. Эвакуации подлежит также население, проживающее в зонах возможного затопления. Для подготовки и проведения мероприятий по эвакуации населения в городах, районах и на объектах народного хозяйства создаются эвакуационные комиссии, в загородной зоне — эвакоприемные комиссии. Для отправки эвакуируемого населения в городах создают пункты, а в загородной зоне для приема и размещения эвакуируемого куационные пункты.
О начале эвакуации население оповещается администрацией предп дений, учебных заведений и ЖЭН.
=RUSSIAN EVACUATION PLANS TO NEGATE ENEMY NUCLEAR THREATS
ВОЕННЫЙ
СССР
ТРУДОВАЯ КНИЖКА
Получив распоряжение на эвакуацию, каждый должен взять с собой средства индивидуальной защиты, личные вещи, документы, запас продуктов, воды и медикаменты
СБОРНЫЙ ЭВАКУАЦИОННЫЙ ПУНКТ №17
К установленному времени эвакуируемое население городским транспортом или пешим порядком самостоятельно прибывает на сборный эвакуационный пункт
На сборном эвакуационном пункте население проходит регистрацию и распределяется по пешим колоннам или транспортным эшелонам
Население в
в состав
Население вывозится всеми видами транспорта:
автомобильным
железнодорожным
водным
В загородной зо
по населе
При проведении эвакуации население должно четко выполнять распоряжения местных органов влас
администрации сборных и приемных эвакуационных органов, начальников эшелонов и колонн.

ПРИБОР ПРЕДНАЗНАЧЕН ДЛЯ ИЗМЕРЕНИЯ УРОВНЕЙ ГАММА-РАДИАЦИИ НА МЕСТНОСТИ И РАДИОАКТИВНОЙ ЗАРАЖЕННОСТИ ПО ГАММА-ИЗЛУЧЕНИЮ ЛЮДЕЙ, ПРОДОВОЛЬСТВИЯ, ВОДЫ, ТЕХНИКИ, ОДЕЖДЫ И ДР.

RUSSIAN DP-5V RADIAC (GEIGER
BOTH GAMMA SURVEY METER AN
DETECTING FOOD/WATER CONTA

УСТРОЙСТВО ПРИБОРА:

1. Телефоны 2. Футляр с крышкой 3. Тумблер подсвета шкалы микроамперметра 4. Шкала микроамперметра 5. Кнопка сброса показаний микроамперметра 6. Переключатель поддиапазонов 7. Гибкий кабель 8. Блок детектирования 9. Удлинительная штанга

HEADPHONES (FOR GEIGER CLICKING SOUND)

2 - ROTATI
BETA SHIE
ON PROBE

9 = EXTENSIBLE PROBE POLE

POWERED BY THREE KB-1 BATTERIES FOR 55 HOURS. WEIGHT = 3.2 KG.

УСТРОЙ

1. Повор
4. Опор
6. Гайка

0.05 m

ТЕХНИЧЕ

ДП-5В
теристи
Диапазо
нию от
имеет 6
са прибо
ется от
Комплек
ную раб
бор им
для под
постоян
24 В

THE MARCH OF TIME THROUGH EUROPE

Once more Europe was reshaped yesterday—and every European country shared in the stress and tension that accompanied the remaking.

Page 3 shows you Germany, comparatively calm as Mr. Chamberlain comes to see Herr Hitler. Now, on this page, take a look at England, at Czechoslovakia and at the Sudeten territory that is no longer hers.

There you see popular excitement stirred to fever heat . . . . and, strange though it may seem, come back again to German calm—IN ENGLAND—as 800 of her ex-Servicemen sit in the capital as Britain's guests.



Westminster

In London's most historic building—Westminster Hall, scene of famous State trials, of Coronation banquets, and in which, less than three years ago, the coffin of King George V lay in state.

The 800 German ex-Servicemen entertained to tea yesterday as the guests of the British Government.

10,000 SHOUT 'STOP HITLER'

TEN THOUSAND people shouting "Stand by the Czechs" . . . . "Stop Hitler" . . . . "Chamberlain must go," last night staged one of the biggest demonstrations in Whitehall since the beginning of the crisis.

The demonstration was arranged by the International Peace Campaign, to hand in a resolution of protest against the Anglo-French peace plan to the Foreign Office.

PLACARDS BEARING SLOGANS: "BRITAIN'S HONOUR LOST TO-DAY WILL MEAN BRITAIN'S PEACE LOST TO-MORROW," WERE EVERYWHERE.

Pressure at the throng on the police cordon at the entrance to Downing-street became so strong that police stood two deep with linked arms.

When the crowd almost broke through, four mounted police rode into Downing-street amid boos and heeting.

An additional detachment of between thirty and forty police had to be called, bringing the number of officers in Whitehall to more than 200.

"Recall Parliament"

The din subsided when, after two hours, the crowd was informed by broadcasts from a loud-speaker van that a deputation would be received at the Foreign Office to present their protest about 10.30 p.m.

The deputation was wildly cheered when it passed up Downing-street through the police cordon at 10.40 to be received by the private secretary of Lord Halifax.

It consisted of the Rev. A. E. Belden, of the Whitefields Tabernacle, Tottenham Court-road; Miss Helen Simpson and Professor Sydney Chapman, of the Imperial College of Science; Miss N. E. Bell, secretary of the International Peace Campaign, and Mr. R. Freeman, an official of the campaign.

They remained only a few minutes and after they left Sir John Simon and Sir Samuel Hoare left the Foreign Office.

The protest resolution demanded the instant recall of Parliament, publication of the full text of the Anglo-French proposals and effective reaffirmation of unity of purpose for peace between Britain, France and the Soviet.

It declared the signatories were pledged to fight for a policy compatible with the honour of Britain.

The crowd began to gather when 100 pickets from organisations sympathetic to the cause took up positions in Whitehall.



Eger Hands raised in the Nazi salute as Sudeten Germans, in flight but a few hours before, march back armed and triumphant.



Whitehall

Chanting "Stand by the Czechs!" 10,000 demonstrators pressed against a cordon of police in Whitehall last night in an attempt to break through into Downing-street.

Earlier in the day crowds gathered in Prague, listening outside the Parliament building (right) to speeches announcing the resignation of Dr. Hodza and his Ministers.



Prague

GERMAN PUTS FOOTBALL FIRST

AN Anglo-German meeting brought about by goodwill instead of crisis took place at Greenwich yesterday.

Eight hundred German ex-Servicemen arrived in the cruising ship Monte Pascoal to spend three days with their former English foes. They were taken on by launch to Westminster.

The first question of one of the visitors was, "Where are the Arsenal playing on Saturday?"

"We are not here to talk politics," he added.

The visitors, who came at the invitation of the British Legion, were welcomed at Westminster Hall by Defence Minister Sir Thomas Inskip.

Major-General Sir Frederick Maurice, Legion president, in his welcome, said:—"At this time of international crisis and difficulty it is, to my mind, of supreme importance that we old soldiers of both countries should get together to learn to understand each other's points of view.

"It is singularly appropriate that this return visit of years should be made here in the Thames, our great London river, at the moment when our Prime Minister is arriving at Cologne on his way to visit your Fuehrer.

The Duke of Saxe-Coburg-Gotha, president of the German ex-Servicemen's Association, replying, said:

"It is our desire to give expression to the feelings of friendship which we have for our British comrades and, at the same time, we wish to show before the whole world that we are determined to join with them in every effort for honourable peace."

Soviet 'Planes?

According to a Central News message from Berlin last night, the German official news agency has issued a report that twenty-one Soviet two-motored monoplane bombers landed yesterday at Pardubitz—in Bohemia, about sixty miles east of Prague—and that eighteen similar 'planes had landed at an emergency aerodrome at Bohdaetsch.

The British United Press adds that the German news agency says that twenty Soviet Air Force officers are in Sobaslau.

ABOVE: 10,000 marched to shout "STOP HITLER" while Chamberlain surrendered Sudetenland for a worthless peace deal. Neither the

shouting, nor the "peace deal", nor belated token rearmament, deterred WW2. In the cold war, strategic nuclear deterrence failed time and again: Stalin took over Eastern Europe while Truman had a nuclear monopoly. Only credible tactical nuclear weapons had any effect, judging from protests the Moscow World Peace Council organized across the world against the W79 neutron bomb (see **1977 Secret CIA report on neutron bomb propaganda, below and John Barron's "KGB's Magical War for Peace" book extracts in Reader's Digest below**, or see Chapman Pincher's book documenting how Moscow's World Peace Council infiltrated anti-nuclear propaganda via stupid appeasing Western media, "The Secret Offensive") - you need credible nuclear deterrence to force madmen not just listen but to respond usefully.

Approved For Release 2004/09/24 : CIA-RDP81M00980R003200010060-0

SECRET

CIA declassified: CIA-RDP81M00980R003200010060-0

2 September 1977

SOVIET PROPAGANDA: THE NEUTRON BOMB

SUMMARY: The Soviet Union during July and August 1977 mounted a worldwide campaign against U.S. production of the neutron bomb. The Soviets pursued this issue in every media channel and wherever it was possible to stimulate adverse public discussion. These efforts were directed toward pressuring the U.S. to back away from producing the bomb as well as accumulating political capital for Soviet use at future SALT and CSCE talks. As the campaign peaked at the end of August, it was apparent

denouncing the neutron bomb. During the week of 1-7 August, significant attention was directed toward support of the "Week of Action" organized for 6-13 August by the World Peace Council front group. To keep up steam, Pravda on 9 August published an appeal by 28 communist parties against production of the neutron bomb. The American Embassy in Moscow noted that the neutron bomb was the prime Soviet propaganda target.

7. Echoes in Eastern Europe. State Department telegrams from East European Posts agree that the neutron bomb campaign there, which took off in the latter weeks of July, was massive, well-organized and faithfully mirrored the Soviet effort. The campaign employed all channels of public communication: press, radio, television, petitions, public letter writing and demonstrations. Some comments:

10. For the Soviets, the real propaganda paydirt lay in editorial treatment given the neutron bomb by this second group, a performance judged by NATO Secretary General Luns in a 26 August speech as consisting of half-truths, untruths and ignorance. Given the emotional themes which were raised in the neutron bomb debate--saving buildings rather than people; the hypocrisy of Americans advocating human rights in face of the bomb production; the endangering of detente--it was an old-fashion editorial binge which many papers would not deny themselves. And beyond the non-communist, anti-bomb press,

SECRET

Approved For Release 2004/09/24 : CIA-RDP81M00980R003200010060-0

The KGB's Magical War for "Peace"

BY JOHN BARRON

It has spread like a raging fever throughout the world. From Bonn to Istanbul, Lima to New York, millions upon millions of people have joined in the nuclear-freeze movement. It is a movement largely made up of patriotic, sensible people who earnestly believe that they are doing what they must to prevent nuclear war. But it is also a movement that has been penetrated, manipulated and distorted to an amazing degree by people who have but one aim—to promote communist tyranny by weakening the United States. Here, in an exclusive report, Reader's Digest Senior Editor John Barron, author of the best-seller "KGB: The Secret Work of Soviet Secret Agents," authenticates in detail how the Kremlin, through secrecy, forgery, terrorism and fear, has played upon mankind's longing for peace to further its own strategic

Fabrications and Fronts

IN THE SOVIET LEXICON, Active Measures include both overt and covert propaganda, manipulation of international front organizations, forgeries, fabrications and deceptions, acts of sabotage or terrorism committed for psychological effect, and the use of Agents of Influence.*

The KGB has concocted more than 150 forgeries of official U.S. documents and correspondence portraying American leaders as treacherous and the United States as an unreliable, warmongering na-

one of the most damaging was a fabrication titled *U.S. Army Field Manual FM30-31B* and classified, by the KGB, top secret. Field manuals *FM30-31* and *FM30-31A* did exist; *FM30-31B* was entirely a Soviet creation. Over the forged signature of Gen. William Westmoreland, the manual detailed procedures to be followed by U.S. military personnel in friendly foreign countries. These fictitious in-

Façade of Peace

THE WORLD PEACE COUNCIL emerged in Paris in 1950 to foment "Ban the Bomb" propaganda at a time when the Soviets had not succeeded in arming themselves with nuclear weapons. Expelled from France for subversion in 1951, the WPC took refuge in Prague until 1954, when it moved to Vienna. The Austrians also evicted the

READERS' DIGEST, 1983 BOOK EXTRACTS BY JOHN BARRON



Romesh Chandra

the global pro
da campaign
pel withdra
American
from Vietnan
The presi
the council is
communist
Chandra, wh
has been a co
and witting
agent. Intel
vain and arrogant, Char
almost embarrassing in his
adherence to Soviet dictates
paeans to all things Sovie
Soviet Union invariably s
the peace movement," C
said a few years ago. "The
Peace Council in its turn pe
reacts to all Soviet initiat
international affairs."
Nevertheless, the Russi
pervise Chandra closely by
ing both International Dep
and KGB representatives to
manent secretariat of the
Helsinki. The public record
demonstrates the totality o
control. In its 32 years of ex
the WPC has not deviated fi
Kremlin's line of the mon
did not raise its voice agains
suppression of Polish and E

man workers in 1953,
slaughter of Hungarians i
Soviet abrogation of the n
test moratorium in 1961, th
destine emplacement of
missiles in Cuba in 1962, th
sion of Czechoslovakia i
the projection of Soviet r
power in Angola, Ethiop
Yemen. The WPC has fa
criticize a single Soviet arm
program; only those of the
And it endorsed the Sovie
sion of Afghanistan.
WPC finances further refl

WASHINGTON SCENE...*from the AIAA Washington*

ASTRONAUTICS & AERONAU
January 1981

● CIA Deputy Director John McMahon, in testimony before a House Intelligence Subcommittee, estimated that the Soviet Union had spent $200 million on propaganda and covert campaigns against NATO deployment of enhanced-radiation (neutron-bomb) weapons and the modernization of theater nuclear weapons.

Enhanced radiation weapons (ERW) increase radiation while greatly reducing blast (tenfold) and heat damage to surrounding areas. Made for use in short-range, tactical nuclear weapons such as the Lance missile and 8-in. howitzer, they would probably be used against large concentrations of Warsaw Pact tanks, a major threat to NATO.

The campaign against the neutron bomb began in the summer of 1977 and was manifested in a series of coordinated diplomatic moves, overt propaganda, and covert political action, said McMahon. It began in the Soviet and East European press and spread to communist international front groups all over the world. "The purpose of this front-group activity was to maintain the campaign's momentum and to draw noncommunists into the campaign, particularly in Western Europe. What had begun as a Soviet effort now appeared to many as a general public reaction to the alleged horrors of the neutron bomb," said McMahon.

By far the most important comments, said McMahon, appeared in the noncommunist press in the political center

While it is difficult to assess the full impact of the anti-neutron-bomb campaign, the Carter Administration in April of 1978 deferred production of the enhanced-radiation element of the warheads indefinitely while proceeding with modifications to the warheads themselves to make them compatible with ER components. In commenting on the results of the Soviet bloc campaign, the CIA testimony quoted the chief of the International Department of the Hungarian Communist Party, Janos Berecz, as saying, "The political campaign against the neutron bomb was one of the most significant and most successful since World War II." McMahon also noted that "the Soviet Ambassador to the Hague (Netherlands) at that time was subsequently decorated by the CPSU (Communist Party of the Soviet Union) in recognition of the success of the Dutch Communist Party under his direction, in organizing the high point of the anti-neutron bomb campaign."

With the neutron bomb temporarily defused, testified McMahon, the Soviet Bloc turned its efforts against the U.S. initiated move to modernize the theater nuclear forces (TNF by deploying the highly accurate ground-launched cruise missile (GLCM) and the Pershing II missile. Scheduled for deployment in late 1983, they will, for the first time, place targets on Soviet soil within range of NATO ground-based missiles. The purpose of the modernization is to minimize th

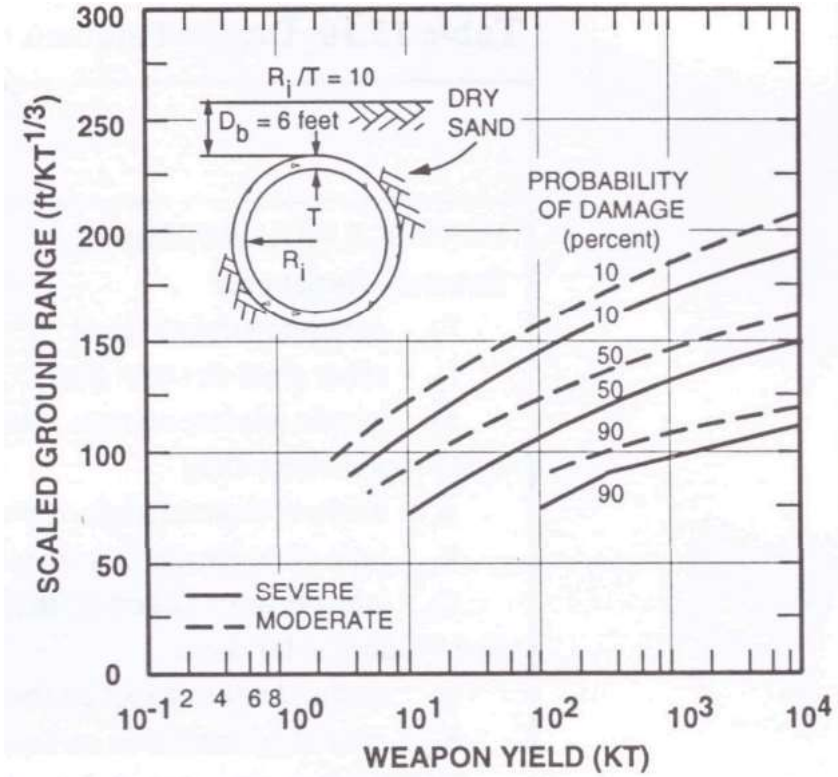


Figure 15.52. Vulnerability Curves for a Horizontal Cylinder, Aspect Ratio $R_i/T = 10$ (Structure Category 15.3.18) Buried in Dry Sand.

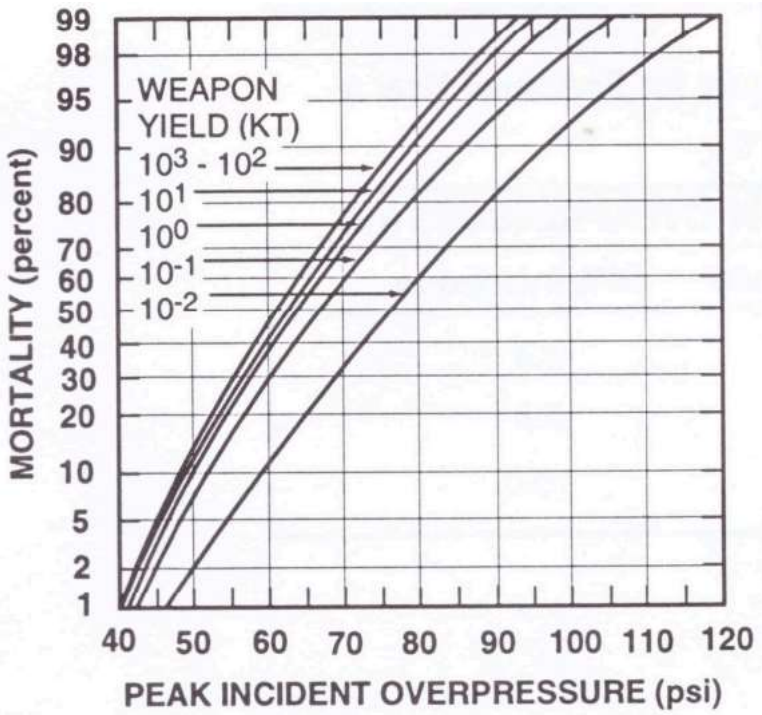


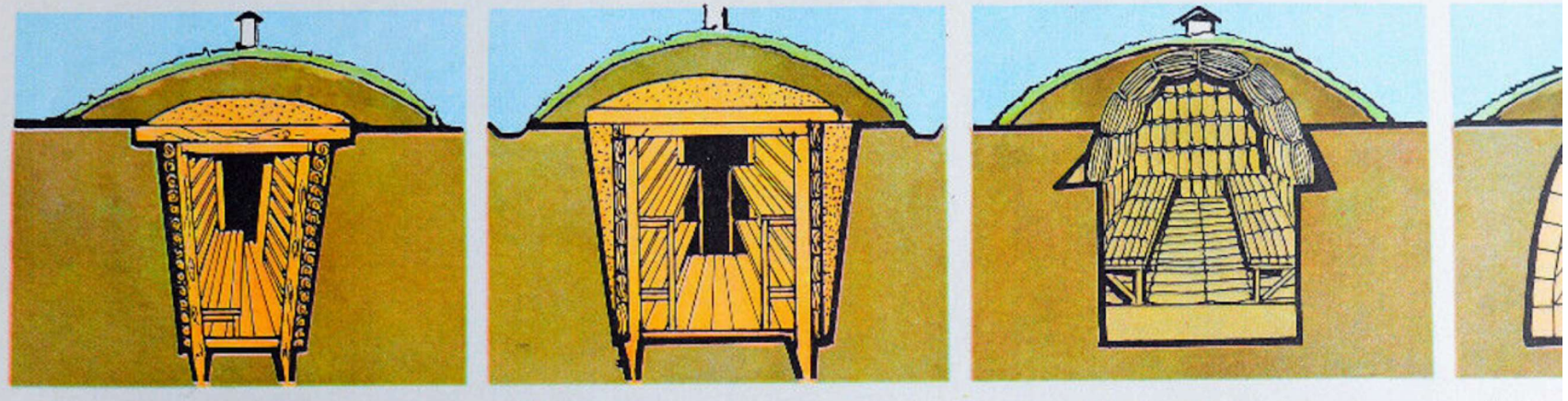
Figure 14.3. Mortality Due to Lung Injury; Long Axis of Body Parallel to Direction of Blast Wave.

SOURCE: NORTHROP, EM-1, 1996

ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ

(ПРОДОЛЖЕНИЕ)

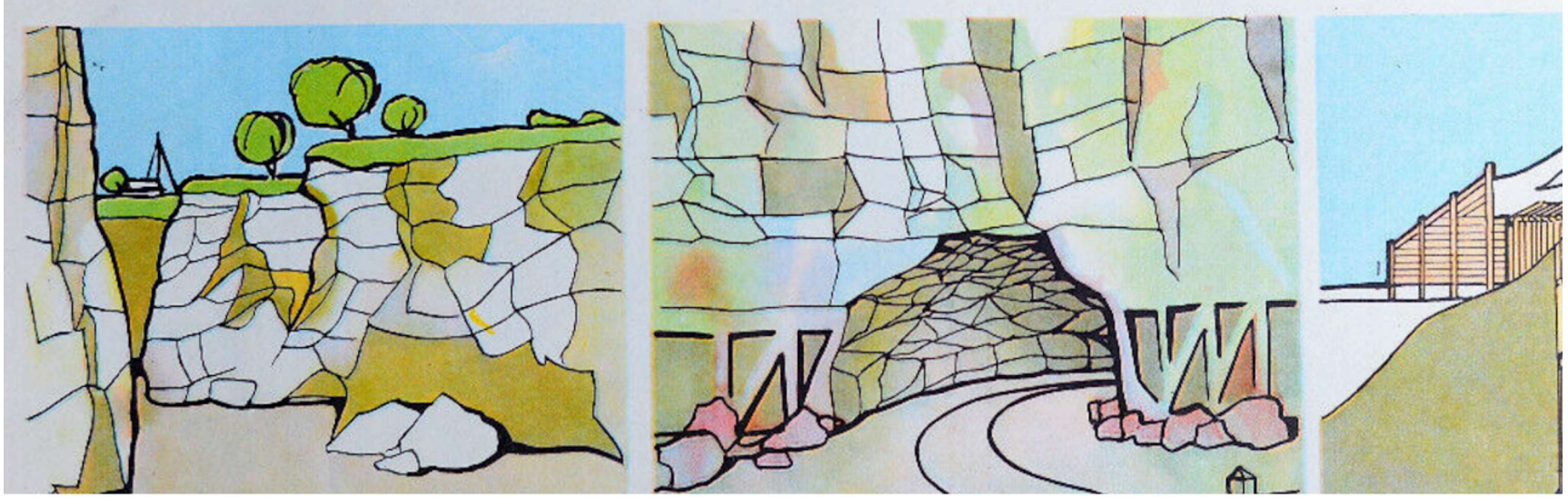
Население при угрозе нападения противника может своими силами строить из подручных ма
рода укрытия.



Щель | Землянка | Укрытие из арочных фашин | Укрытие

Простейшие укрытия типа щели с одеждой крутостей ослабляют действие радиации в 100—200 раз, уменьшают радиус поражения от ударной волны в 1,

В районах горнодобывающей и угольной промышленности под укрытия могут быть использо
выработки по добыче строительных материалов, катакомбы, пещеры и др.

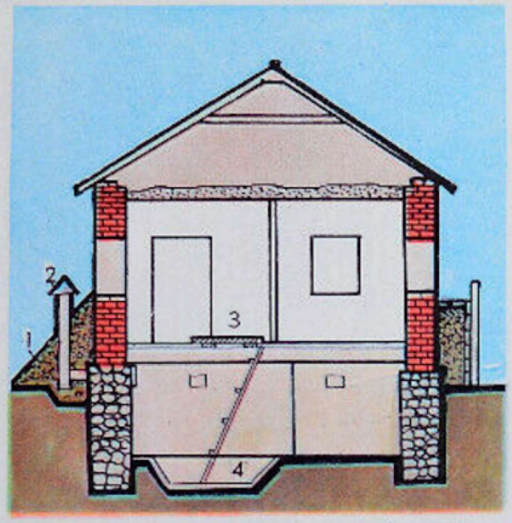


ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ

Противорадиационными укрытиями называют сооружения, обеспечивающие защиту укрывающихся в них людей от заражения радиоактивными веществами и от облучения в зоне радиоактивного заражения местности.

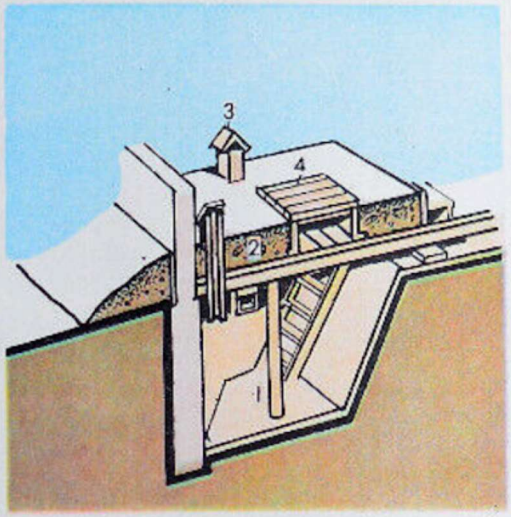
Под противорадиационные укрытия могут быть широко использованы приспособленные для защиты подвалы, подполья, погреба и другие углубления. Кроме того, укрытия могут возводиться с использованием лесоматериала, кирпича, бетонных и железобетонных элементов. В сельской местности укрытия строят из подручных материалов (круглый лес, жерди, хворост, камыш и др.).

ПРИСПОСОБЛЕННЫЕ ПОД УКРЫТИЯ ХОЗЯЙСТВЕННЫЕ СООРУЖЕНИЯ



Подвал каменного дома, приспособленный под укрытие:

1 — обсыпка грунтом; 2 — вытяжной короб; 3 — герметизированный люк; 4 — углубленный приямок



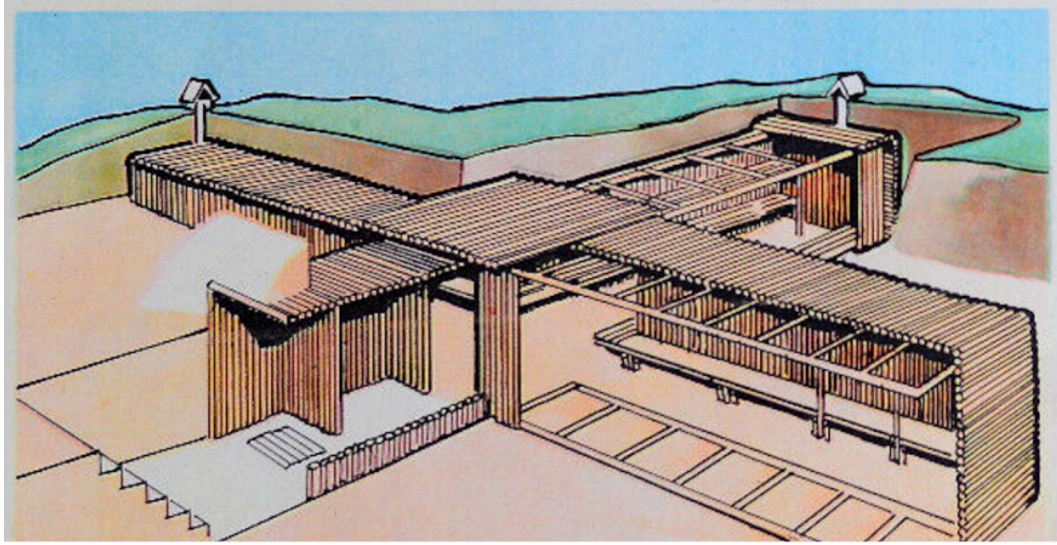
Приспособление подполья под укрытие:

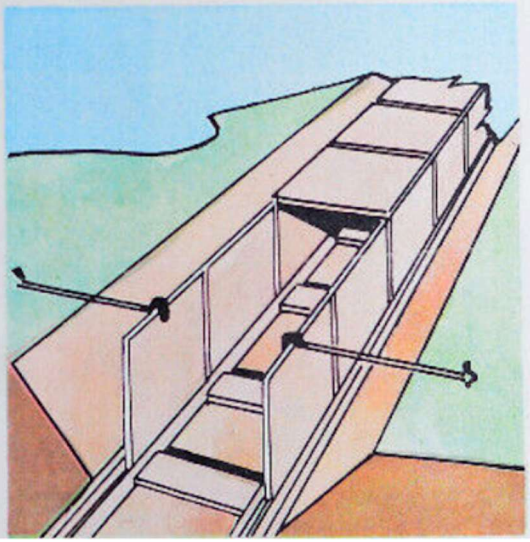
1 — стойка усиления перекрытия; 2 — грунтовая засыпка; 3 — вентиляционный короб; 4 — дополнительная крышка люка



Отдельн
под укрыти
1 — места
(шлеком) 20
верстие для п

СТРОИТЕЛЬСТВО УКРЫТИЙ ИЗ ЛЕСОМАТЕРИАЛА И ЖЕЛЕЗОБЕТОННЫХ ЭЛЕМЕНТОВ







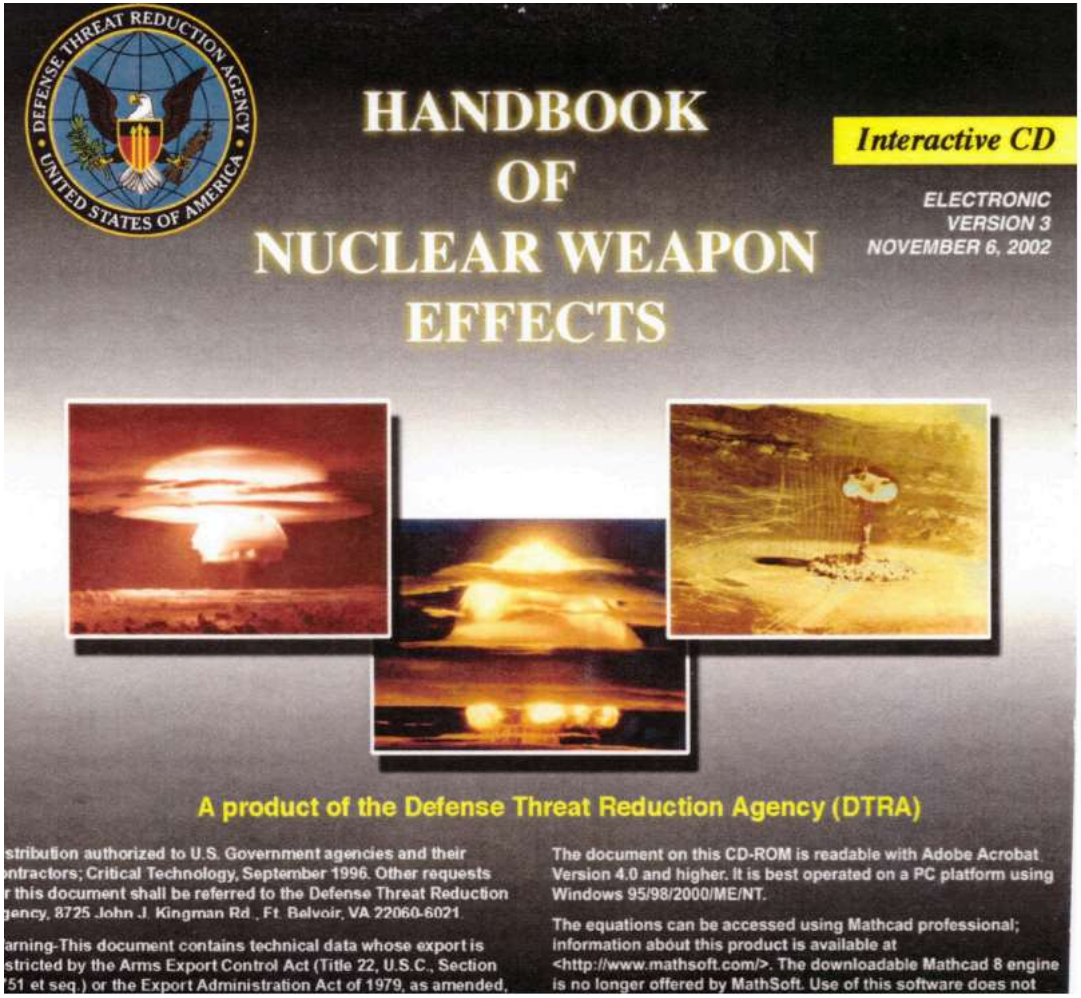


Table 15.17. Command Post an
Vulnerability Levels for Peak O

PERCENT PROBABILITY OF DAMAGE	LEV LIGHT M
10	20
50	30
90	45

Table 15.18. Hardened Frame/F
Vulnerability Levels for Peak O

PERCENT PROBABILITY OF DAMAGE	LEV LIGHT
10	20
50	30
90	45

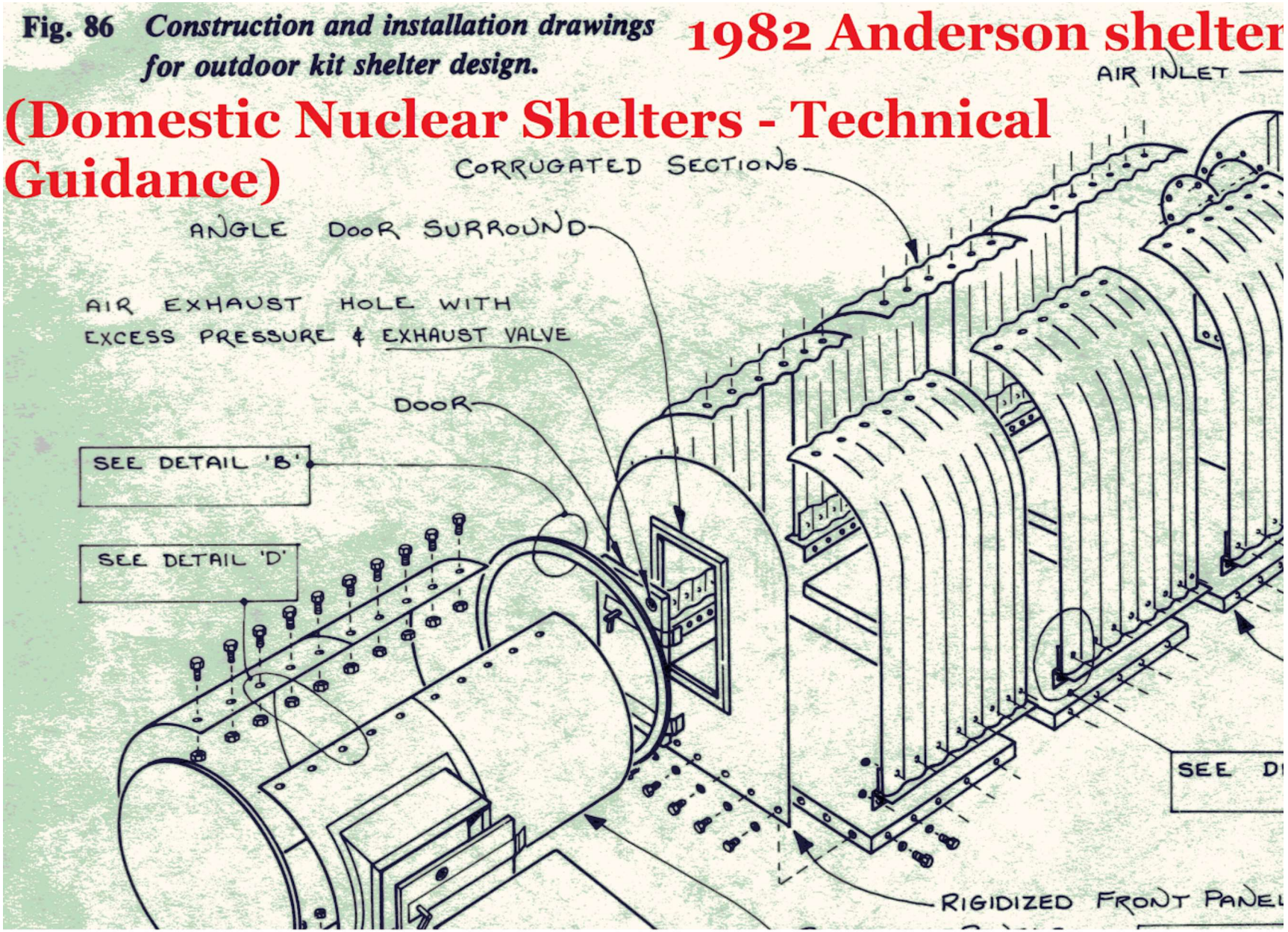
EXPEDIENT FIELD SHELTERS:

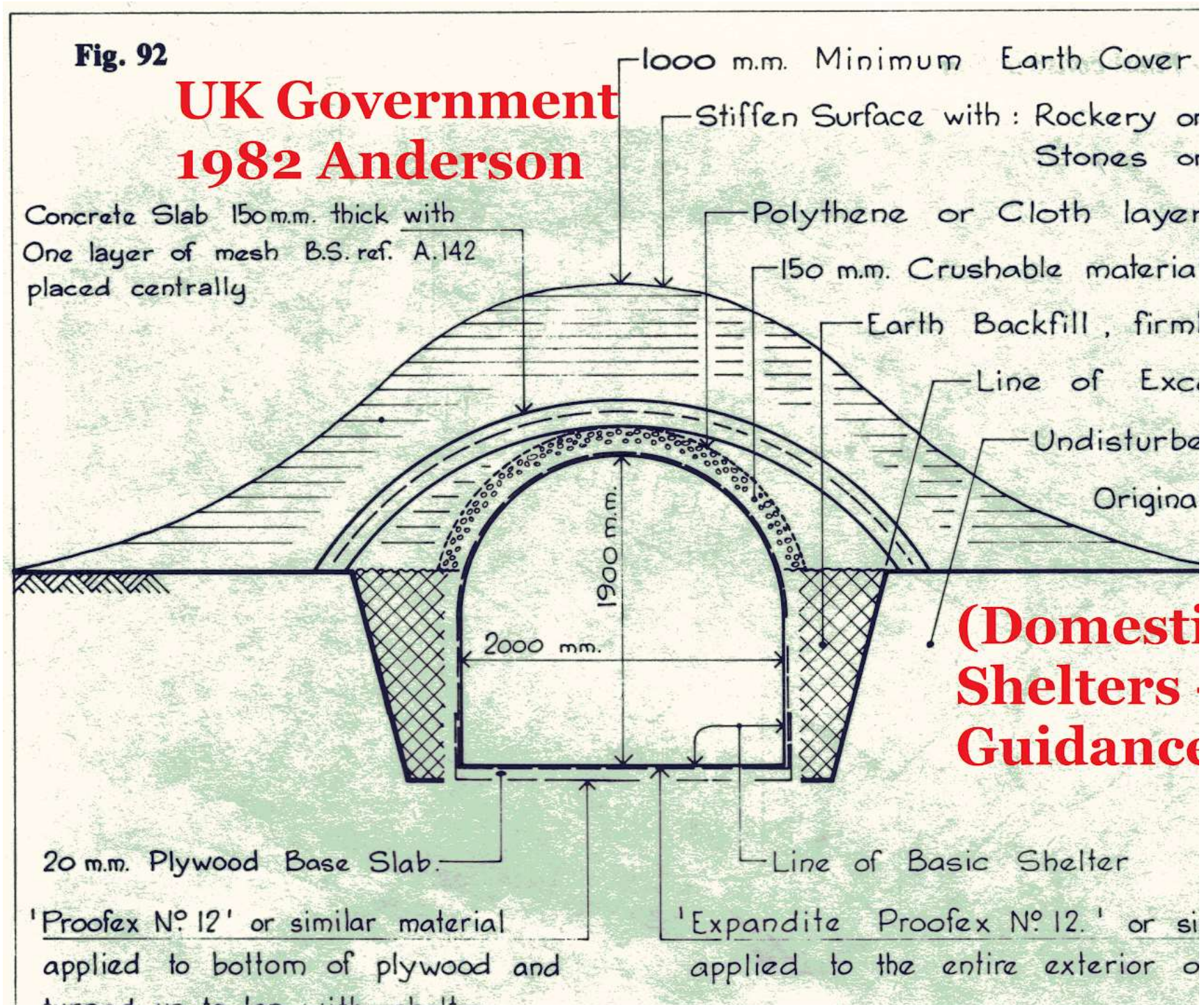
ABOVE: Northrop's Effects Manual 1 (EM1), Tables 15.17 and 15.18 show that simple earth covered expedient shelters have a 50% probability of collapsing at 60 psi peak overpressure, which occurs at just 0.8 mile from a 1 megaton surface burst, but **Figure 15.52 (linked here) shows that a simple reinforced concrete tube use as a shelter (concrete stress strength = 4500 psi, with a thickness equal to 10% of the inner radius of the tube) buried under 6 feet of dry or wet soil (note that the curves for wet soil in Figure 15.55 are similar for severe damage at 1 megaton to dry soil in Figure 15.52) has a 50% probability of collapse at 0.3 mile from a 1 megaton surface burst. (The eight deep personnel shelters under London at are much greater depths than 6 feet.)** According to Table 6.12 in the 1957 edition of Glasstone's *Effects of Nuclear Weapons*, Britain's 1939-designed World War Two standard issue corrugated steel arch outdoor Anderson shelters if enlarged to 20-25 feet span (*which increases vulnerability, since smaller arches have a*

smaller exposed area and so receive lower blast loading) and using 10 gage steel with 3 feet earth cover (over the crown), will half collapse (i.e. collapse the side facing ground zero) at 30-35 psi peak overpressure, and will completely collapse at 35-40 psi peak overpressure, based on the 1955 Teapot nuclear test series in Nevada. However, following careful nuclear tests on such shelters during the 1957 Plumbbob series in the Nevada and the 1958 Hardtack series in the Pacific, the "earth arching" protective effect of soil cover was discovered and better understood, so that Glasstone's revised 1962 edition of *Effects of Nuclear Weapons* stated in Table 4.45 (which is reprinted unaltered as Table 5.160 in the 1977 final edition of *Effects of Nuclear Weapons*) that such shelters with 5 ft earth cover require 45-60 psi peak overpressure for collapse. This revised table also shows that a reinforced concrete arch 8 inches thick with a span of 16 feet and 4 feet of earth cover will require 220-280 psi peak overpressure for collapse. The earth arching and earth shielding effect is the simple, nuclear bomb-tested survival principle behind Cresson Kearny's 1979 Oak Ridge National Laboratory manual, *Nuclear War Survival Skills*, and the **UK government's 1982 Domestic Nuclear Shelters - Technical Guidance 2nd edition (extracts linked here with additional detailed relevant nuclear test data, see illustrations below for the 1982 version of the earth covered 1939 WW2 Anderson shelter - based on data from American and British nuclear tests, from the 1952 Monte Bello Operation Hurricane shot onwards)**.

Fig. 86 ***Construction and installation drawings for outdoor kit shelter design.***

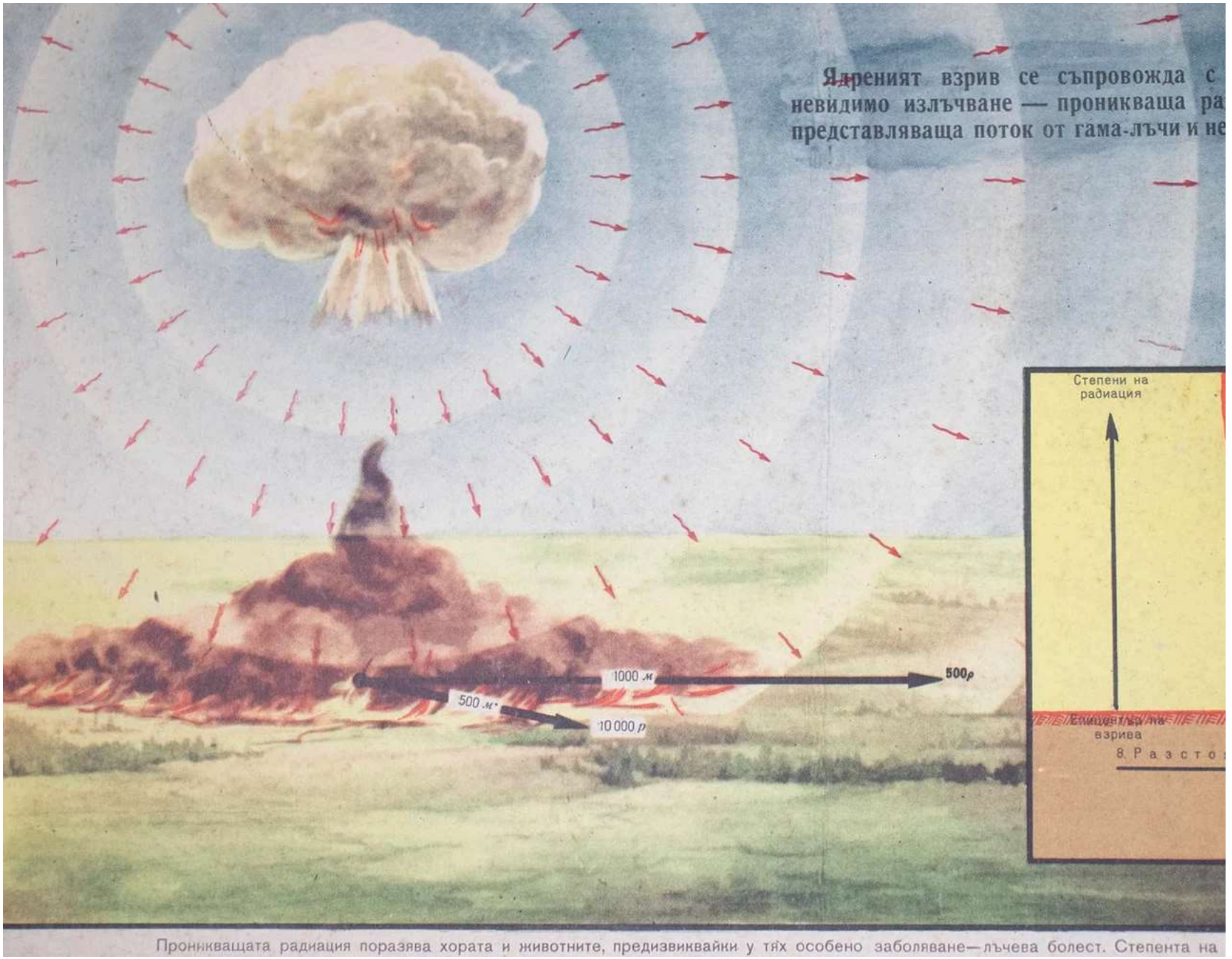
1982 Anderson shelter (Domestic Nuclear Shelters - Technical Guidance)



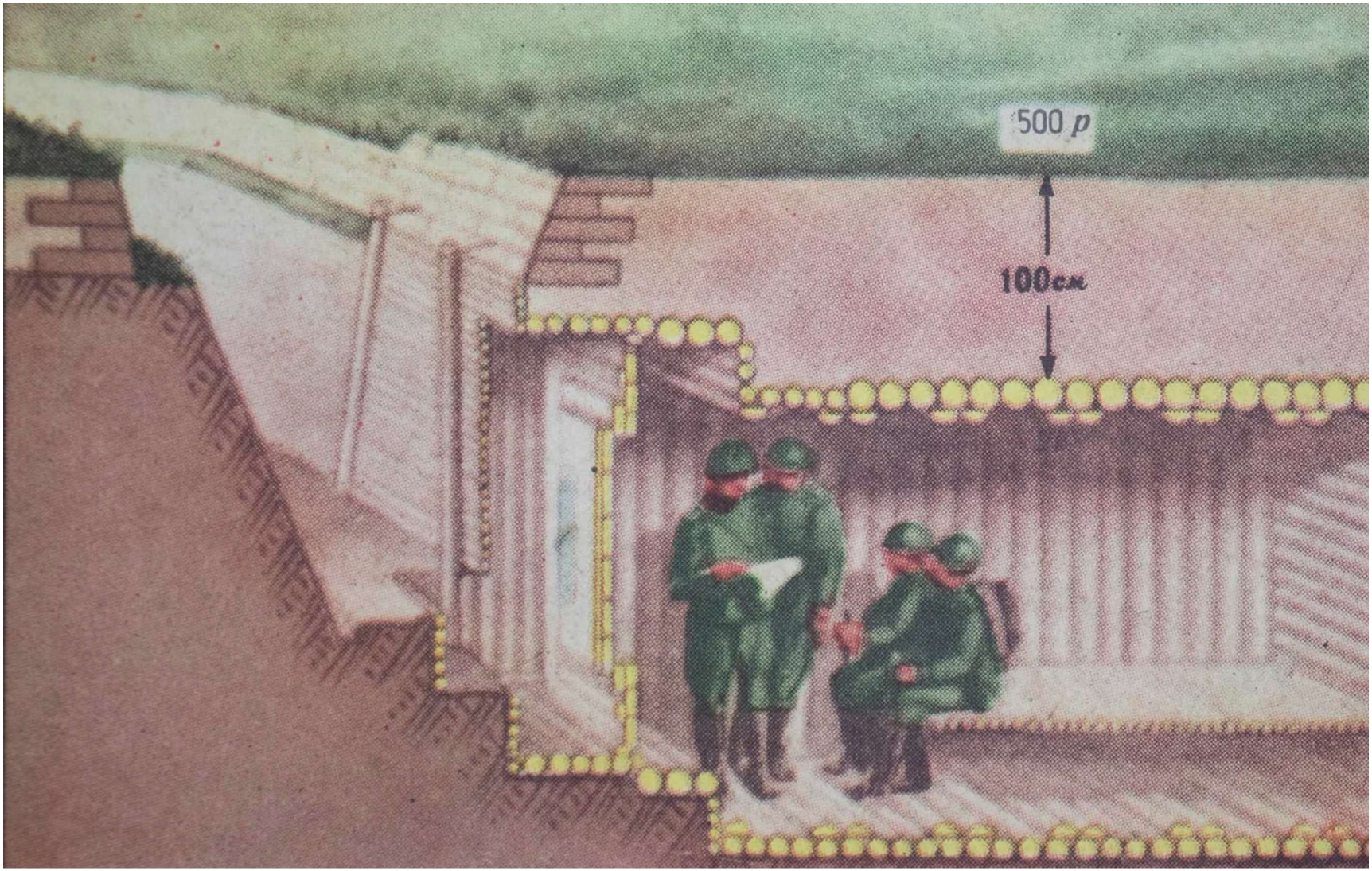

Fig. 92
UK Government
1982 Anderson
1000 m.m. Minimum Earth Cover
Stiffen Surface with : Rockery or
Stones or
Concrete Slab 150 m.m. thick with
One layer of mesh B.S. ref. A.142
placed centrally
Polythene or Cloth layer
150 m.m. Crushable materia
Earth Backfill , firm
Line of Exc
Undisturbe
Origina
1900 m.m.
2000 mm.
(Domesti
Shelters
Guidance
20 m.m. Plywood Base Slab.
'Proofex No. 12' or similar material
applied to bottom of plywood and
Line of Basic Shelter
'Expandite Proofex No. 12.' or si
applied to the entire exterior o

turned up to lap with shelter.

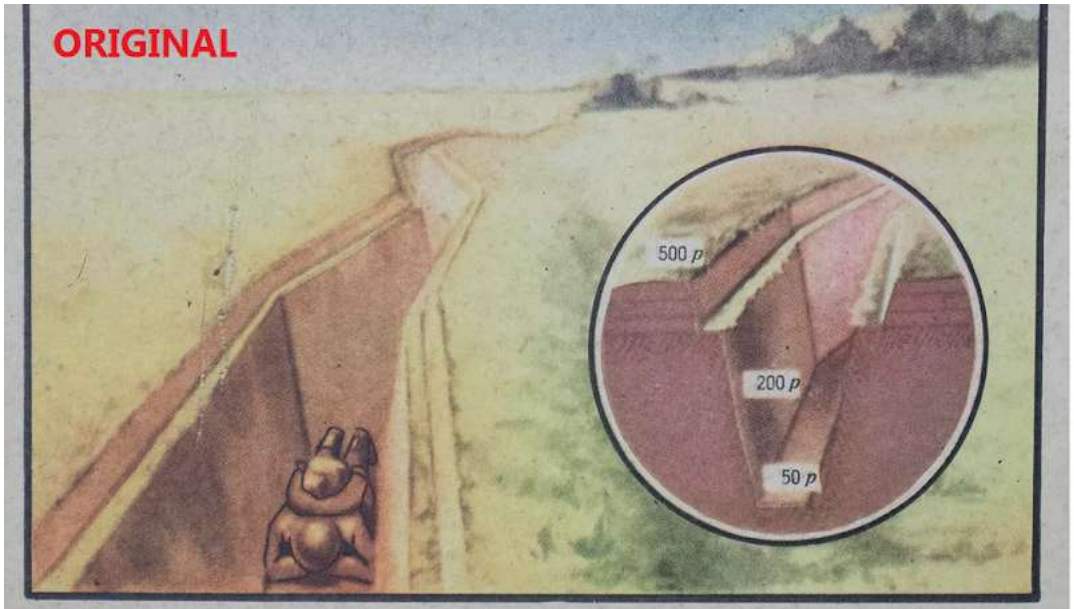
TYPICAL CROSS SECTION : (FLAT BOTTOM)



Проникващата радиация поразява хората и животните, предизвиквайки у тях особено заболяване—лъчева болест. Степента на

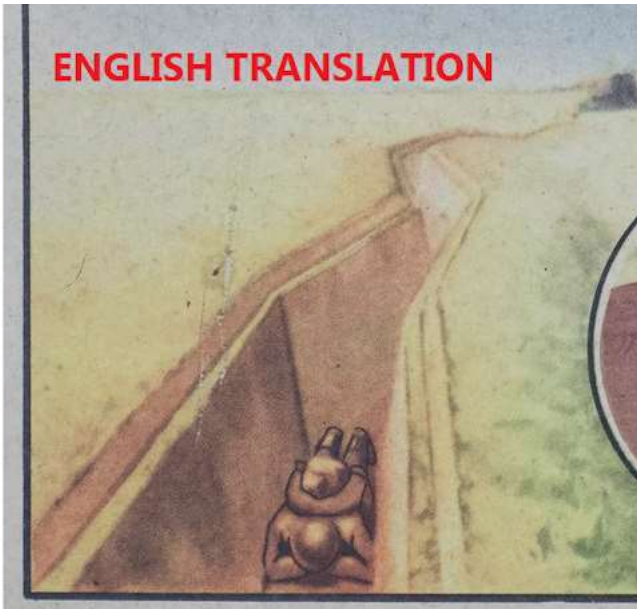

500 p
100 см

ORIGINAL



Стените на открити отбранителни съръжения почти напълно поглъщат прекия поток на проникващата радиация, и в повечето случаи в окопите, траншеите и счелите прониква само разсеяното излъчване. Дозата на излъчване с увеличаване дълбочината на съоръженията рязко намалява. Така на половината от дълбочината на траншеята дозата примерно с 2,5 пъти, а на дъното — с 10 пъти е по-малка, отколкото на повърхността на земята. Затова, виждайки избухването на ядрения взрив, е необходимо незабавно да се легне на дъното на траншеята (окопа).

ENGLISH TRANSLATION



The walls of the open defensive walls almost comple
the penetrating radiation, and in most cases in the trench
penetrates just the scattered broadcast. Radiation dose w
equipment- it's dropping sharply. So at half the depth of th
2.5 times, and at the bottom - by 10 times smaller tha
Therefore, seeing the explosion of the nuclear explosion, it is
the bottom of the trench.

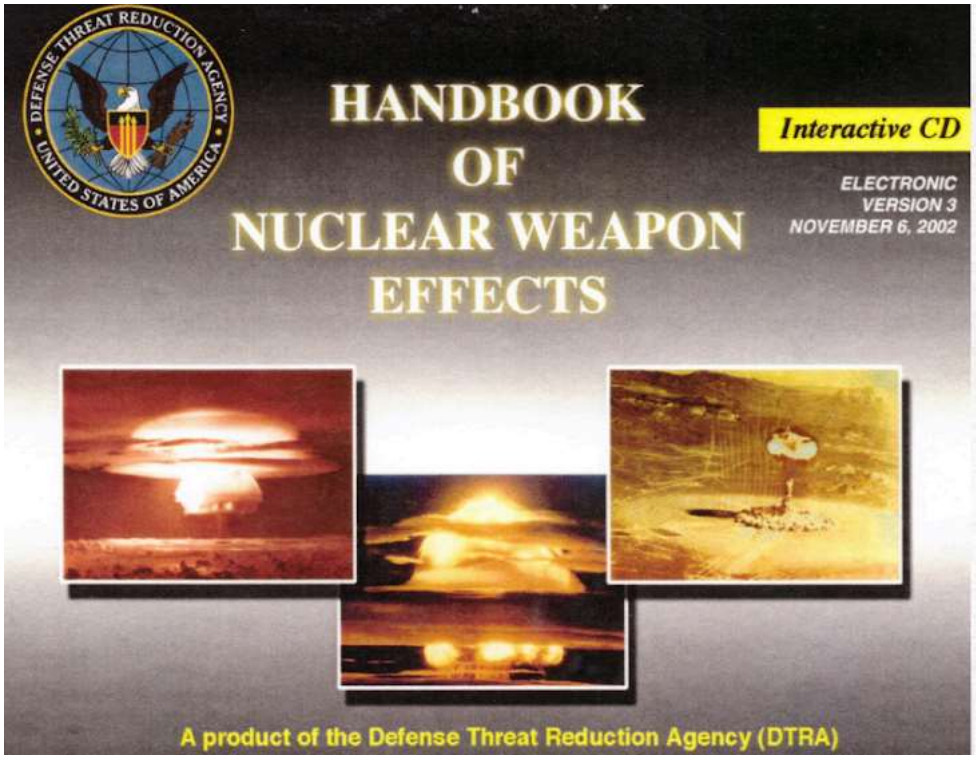
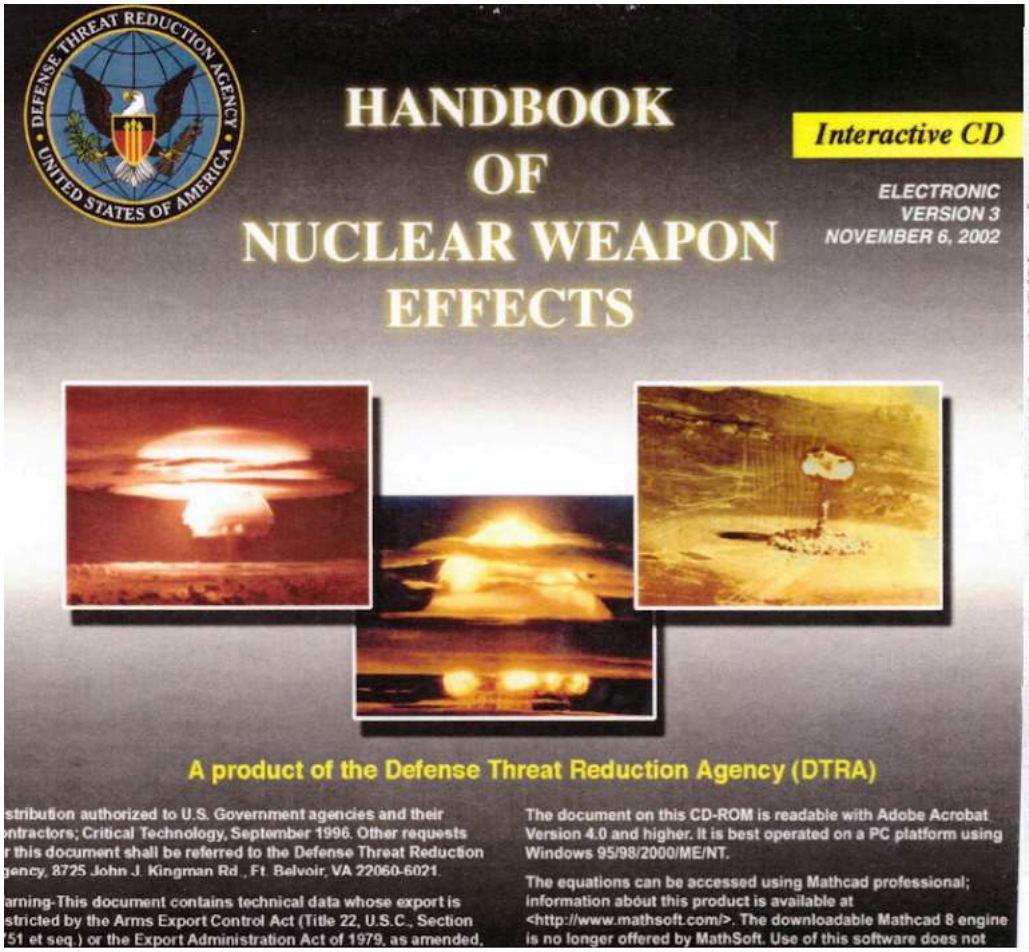


Table 8.10. Height of Burst and Y
Generic Device Types.

TYPES OF NUCLEAR WEAPON DESIGNS

Device Type	Data HOB (meters)	HOB (me
Enhanced Radiation (ER) (13)		
Low Yield	75	50
High Yield	200	100
Thermonuclear (8)	200	150
Boosted Fission (5)	160	60
Fission (3)	150	60



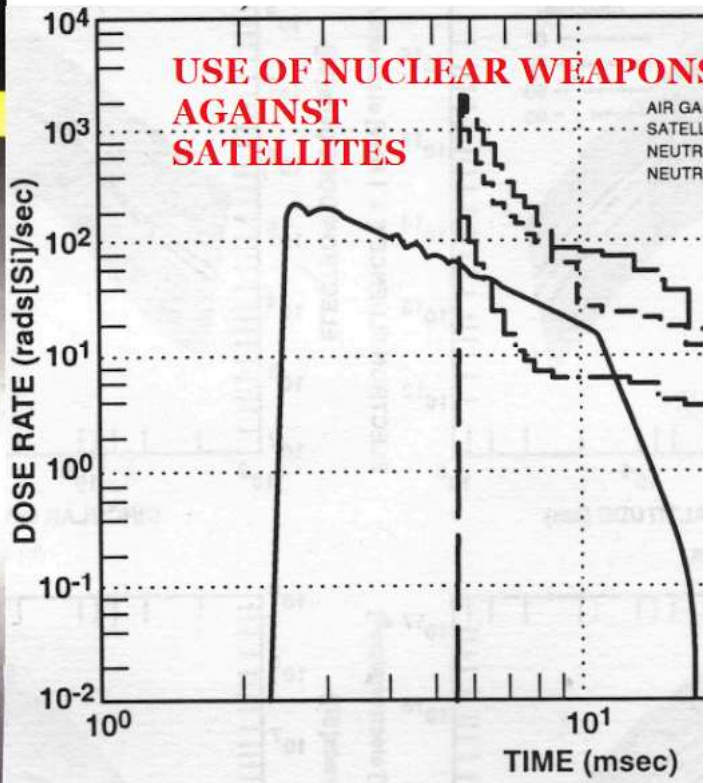


Figure 22.3. Neutron-Induced Dose Rate Ve
Detonation at 100 km HOB on a Satellite Lo
(Burst Range, 300 km).

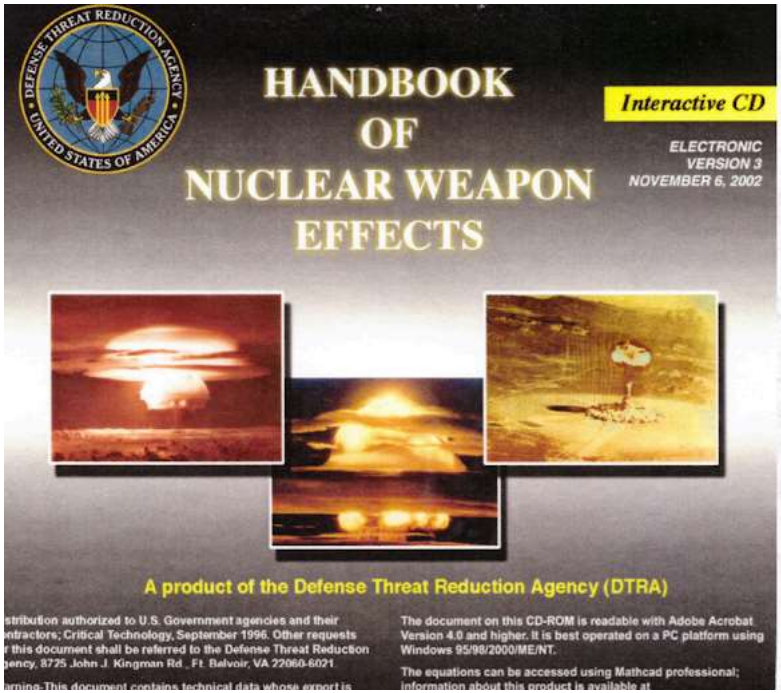


Table 14.1. Combat Ineffectiveness for Pers
Two-Man Foxhole (2 x 6 x 4.5 feet) Side-On

COMBAT INEFFECTIVENESS (%)	WEAPON Y		
	0.01	0.1	1
	PEAK INCIDENT OVE		
99	52	38	38
50	37	29	29
1	25	21	21

ABOVE: the **report on the radiation shielding by simple, quick, and cheap US Civil War, WWI and WWII-style *trench shelters* exposed at the UK *Hurricane* nuclear test in 1952 was classified Secret, although it states in paragraph 13.1.1: *"The experiments described in this section show that slit trenches provide a considerable measure of protection from the gamma flash. From the point of view of Service and Civil Defence authorities this is one of the most important results of the trial."* This cover-up even after the data is declassified ensures that in a nuclear attack, many people kill be needlessly killed. Thugs believe this will help disarmament propaganda or other propaganda rubbish that totally failed when tried out prior to WWII. Despite this hard-won data being recognised for its importance for civil defence, this data was never published in any UK civil defence manual, handbook or advertisement, and is still covered up, like the rest of the taxpayer funded nuclear test research.** When you combine such simple shelters for essential key workers in target areas with crisis evacuation (or "relocation" if "evacuation" is too invocative of September 1939) for the remainder of a city, you achieve a **credible war survival strategy that undermines strategic nuclear deterrence**. (An enemy can still bomb an evacuated, sheltered city to cause building damage and contamination, but historically this just backfires, increasing the morale and determination of the opponent to fight back.) **America for long used secret data from the 1945 combat attacks on Hiroshima and Nagasaki as its primary data source**, classifying the detailed **6-volume Strategic Bombing Survey reports from nuclear use in Japan Secret, and never publishing them or releasing them on the internet (it did not want Russia to have the information), and it did not need to expose a house to a nuclear blast wave until 1951 at Operation Greenhouse.** This backfired due to the direct information Russia obtained from its own nuclear tests. (**Similarly, Britain obtained independent data debunking American anti-civil defence propaganda lies on survival in flattened houses, which it used to the horror of Russian biased arms control and disarmament folk; the CND style liars simply claimed falsely that faked style American "data" somehow was more**

UK NATIONAL ARCHIVES: ES 5/2

ANDERSON SHELTER TESTS AGAINST 25 KT NUCLEAR NEAR SURFACE BURST (2.7 METRES DEPTH IN SHIP)

AWRE-T1/54, 27 Aug. 1954

SECRET—GUARD

ATOMIC WEAPONS RESEARCH ESTABLISHMENT

(formerly of Ministry of Supply)

SCIENTIFIC DATA OBTAINED AT OPERATION HURRICANE

(Monte Bello Islands, Australia—October, 1952)

$$p = \frac{130 \times 10^9}{R^3} + \frac{7{\cdot}7 \times 10^6}{R^2} + \frac{13{\cdot}5 \times 10^3}{R} \text{ p.s.i.}$$



Fig. 12.1, Andersons at 1380 ft range from bomb ship shown in the photo, moored 400 yards off shore.





Left: Fig. 12.3, Andersons at 1800 ft after burst. Right: Fig. 12.4, Andersons protected by blast walls at 2760 ft.

12.1. *Blast Damage to Anderson Shelters*

At 1,380 feet, Fig. 12.1, parts of the main structure of the shelters facing towards and sideways to the explosion were blown in but the main structure of the one facing away from the explosion was intact, and would have given full protection. At 1,530 feet, Fig. 12.2, the front sheets of the shelter facing the explosion were blown into the shelter but otherwise the main structures were more or less undamaged, as were those at 1,800 feet, Fig. 12.3.

At 2,760 feet, Fig. 12.4, some of the sandbags covering the shelters were displaced and the blast walls were distorted whilst at 3,390 feet, Fig. 12.5, the effect was quite small. At these distances, the shelters were not in direct view of the explosion owing to intervening sandhills.

SECRET—GUARD

13. The Penetration of the Gamma Flash

13.1. *Experiments on the Protection from the Gamma Flash afforded Trenches*

13.1.1. The experiments described in this section show that slit provide a considerable measure of protection from the gamma flash. F point of view of Service and Civil Defence authorities this is one of t important results of the trial.

13.1.2. Rectangular slit trenches 6 ft. by 2 ft. in plan and 6 ft. de placed at 733, 943 and 1,300 yards from the bomb and circular fox hole radius and 6 ft. deep were placed at 943 and 1,300 yards.

The doses received from the flash were measured with film badges and fibre dosimeters in order to determine the variation of protection with with depth and with orientation of the trench and the relative protection by open and covered trenches.

In general, the slit trenches were placed broadside-on to the targ but at 1,300 yards one trench was placed end-on. Two trenches, one at one at 943 yards were covered with the equivalent of 11 inches of sand.

Table 13.1

Variation of Gamma Flash Dose on Vertical Axis of Trench

Type of trench	Rectangular broadside-on open			Rectangular end-on open	Circular open		Recta broad cove
Distance (yards) ...	1,300	943	733	1,300	1,300	943	943
Surface dose (Roentgens)	300	3,000	14,000	300	300	3,000	3,000
Depth below ground level (inches)							
6 ...	150	1,000	—	230	214	1,200	(75)
12 ...	75	430	—	150	120	545	47·6
24 ...	33·3	150	584	60	54·5	188	25
36 ...	23	70	216	31·6	30	86	13
48 ...	(20)	43	100	20	17·7	48·5	7·7
60 ...	—	(37·5)	61	13·6	10·7	(33·3)	5
72 ...	—	—	(46·7)	(8·6)	7	—	(3·5)

Entries in brackets are extrapolations or estimates.

reliable than proof tested British data, whose origin was classified secret due to the Marxist infiltrated British bureaucacy which behaved basically as more subtle, even more effective Russian military propaganda front than the better known Cambridge Spy Ring; this thuggery on nuclear weapons capabilities in the UK media continues to this day via Corbyn et al., who are "respected"

on nuclear lies by all UK leading "civil defence historians", "cold war historians" and related propagandarists who know nothing about the nuclear effects secrecy problem.) Recent official publications by the designers themselves of the latest Russian thermonuclear warhead designs, shows equally high quality research, contrary to popular misconceptions.



ADA485845

Defense Threat Reduction Agency
8725 John J. Kingman Road, MS 6201
Fort Belvoir, VA 22060-6201

DTRA -TR- 07-38

REPORT

Animal Effects from Soviet Atmospheric Nuclear Tests

https://apps.dtic.mil/sti/pdfs/ADA485845.pdf

March 2008

DTRA 01-03-D-0022

V.A. Logachev and L.A. Mikhalikhina

Prepared by:
ITT Corporation
Advanced Engineering & Sciences
2560 Huntington Avenue
Alexandria, VA 22303-1410

TABLE 2: 400 kt *Joe 4*
30 metres altitude, 12
Russia.

OUTDOORS: UNSH

Distance, m	High Yield		
	Number of		
	Total	Killed	Injury
			III
730-1000	6	6	0
1050-1800	13	13	0
1900-4000	27	3	1
4100-8000	6	0	0
Total	52	22	1

100% killed up to 1.8k
11% killed between 1.9


MOUNT/EVANS
SECRET



ABOVE: Secret nuclear weapons stockpile history showing that in May 1949 (the month the Berlin Blockade ended), that the USAF knew using Hiroshima and Nagasaki capabilities of nuclear weapons data that 133 nuclear weapons USED STRATEGICALLY would not win a war against a nuclear unarmed opponent! Hence the increase in American interest in TACTICAL nuclear weapons. **Teller wanted the H-bomb because he knew toss all about the effects of nuclear weapons, and didn't want to know the facts, as proved by Dr Frank H. Shelton in *Reflections of a nuclear weaponeer* which first exposed the crater size lies in Glasstone's book.** Teller lies about the firestorm in Hiroshima in his 1962 *Legacy of Hiroshima* book, which says the exact opposite to the secret 3 volume US Strategic Bombing Survey report (volume 2 of which is specifically about the firestorm, which was set off not by thermal radiation but by blast overturning thousands of charcoal braziers being used to cook breakfast, and the breakfast-timing was also the reason why no air raid alarm was sent out, according to Yoshi Oka, the Hiroshima air raid sirens operator who survived near ground zero).

LA-11401

~~SECRET~~
UNCLASSIFIED

January 2, 1991

A SHORT HISTORY OF THE U.S. NUCLEAR STOCKPILE: 1945–1985 (U)

Raymond Pollock

May 1949, a study headed by Air Force Lt. General H. R. Harmon reported that even if all 133 weapons detonated on target the Soviet leadership would not be critically weakened, Soviet military ability to take selected areas of Western Europe and of the Middle East and Far East would not be seriously impaired, and Soviet industrial capacity would not be sufficiently reduced to prevent recovery. The resulting reassessment of targeting requirements led to a substantial increase in nuclear production.

The move away from simple urba
geting to a more elaborate militar
geting doctrine designed to meet sp
military objectives was to a large
made possible by the increasing ava
ity of nuclear weapons, and this mo
turn, stimulated the need for new wea

For the European retardation
sion, which needed to deal with
what transitory targets, the relatively
weight B5 tactical bomb entered sto
in 1952. This was followed in sho
der by a series of new tactical wea

LA-11401 says that STRATEGIC DETERRENCE using all 133 American nuclear weapons in stockpile in May 1949 (in Harmon's USAF study anyway, the actual number is a fantasy b Los Alamos had bits and pieces of nuclear weapons, many missing "pits" or H.E. lenses)

July 1977 Commentary, pp 21-34:

Why the Soviet Union Thinks It Could Fight and Win a Nuclear War

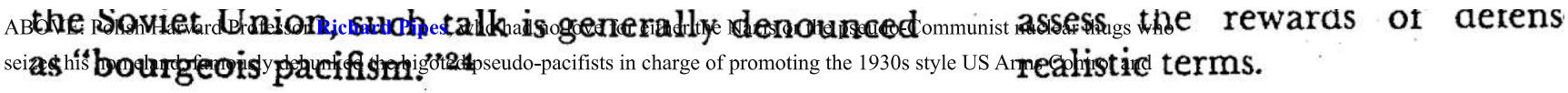
Richard Pipes

3. The threat of a second strike, which underpins the mutual-deterrence doctrine, may prove ineffectual. The side that has suffered the destruction of the bulk of its nuclear forces in a surprise first strike may find that it has so little of a deterrent left and the enemy so much, that the cost of striking back in retaliation would be exposing its own cities to total destruction by the enemy's third strike. The result could be a paralysis of will, and capitulation instead of a second strike.

Since the mid-1960's, the proposition that thermonuclear war would be suicidal for both parties has been used by the Russians largely as a commodity for export. Its chief proponents include staff members of the Moscow Institute of the USA and Canada, and Soviet participants at Pugwash, Dartmouth, and similar international conferences, who are assigned the task of strengthening the hand of anti-military intellectual circles in the West. Inside

Malenkov's unorthodox views c
tainly contributed to his downf
dismissal in February 1955 as p
companied by a barrage of pres
the notion that war had become
are strong indications that Mal
Khrushchev, capitalized on the
military to form with it an al
help he eventually rode to pow
military counterattack seems to
the World War II hero, Marsha
whom Khrushchev made his M

Such figures are beyond the
most Americans. But clearly a
1914 has lost, as a result of two
war, famine, and various "purg
60 million citizens, must def
damage" differently from the U
has known no famines or p
deaths from all the wars waged
mated at 650,000—fewer casu
suffered in the 900-day siege
World War II alone. Such a co



ABOVE: Polish-Harvard Professor **Richard Pipes** and his book [Survival Is Not Enough: Soviet Realities and America's Future](https://www.amazon.com/Survival-Not-Enough-Realities-Americas/dp/0671220357) (1984) on the psychopathic Communist nuclear thugs who seized his homeland formerly debunked the bigoted pseudo-pacifists in charge of promoting the 1930s style US Arms Control and Disarmament Agency appeasement/peace deal lies about nuclear war annihilation in his July 1977 Commentary paper, without getting into classified data on nuclear warhead designs or Russian nuclear tests on house and shelter survivability: **"When he was age 16, Pipes laid eyes upon Adolf Hitler at Marszałkowska Street in Warsaw when Hitler made a victory tour after the Invasion of Poland. The Pipes family fled occupied Poland in October 1939 and arrived in the United States in July 1940, after seven months passing through Italy. Pipes became a naturalized citizen of the United States in 1943 while serving in the United States Army Air Corps. He was educated at Muskingum College, Cornell University, and Harvard University."**

Experts refute CIA – Soviet civil defense

NEW YORK NEWS WORKD, 19 February 1978

By Vicki Tatz
NEWS WORLD WASHINGTON BUREAU

WASHINGTON—Two experts on Soviet civil defense capabilities disagreed sharply yesterday with statements released Friday indicating that the CIA does not place great significance on the massive Soviet preparations.

Dr. Eugenge Wigner, Nobel prize-winning physicist, and retired Gen. George Keegan, former chief of Air Force intelligence, both disagreed with Adm. Stansfield Turner, the director of the Central Intelligence Agency. In

"I don't know what the Soviets plan to initiate," Wigner said, "but the impression one gets is that they constantly claim that to destroy capitalist countries is all right, but to destroy socialism is a terrible crime."

Wigner referred to estimates made by himself and others that only between 2 percent and 5 percent of the Soviet Union's population would be vulnerable to a U.S. nuclear attack, while 45 percent of the U.S. population could be hit.

In another telephone interview Gen. Keegan said there was not the

PENTAGON WARNS ON SOVIET CIVIL DEFENSE

By Henry S. Bradsher
Washington Star Staff Writer

The former head of the Pentagon's Defense Intelligence Agency says the Soviet Union might "alter the strategic military relationship" with the United States by military efforts that include a large civil defense program.

Lt. Gen. Samuel V. Wilson, who has since retired, told a congressional committee that the change could put the United States at a disadvantage by the mid-1980s.

CIA Director Stansfield Turner told the committee the Soviets do not presently "possess a civil defense capability that would enable them to feel that they could with reasonable expectation absorb a retaliatory strike at levels of damage that would be acceptable to them."

But, Turner added, "the Soviet Union is making more progress and effort in civil defense today than is the United States." While Wilson's concern was with the future, Turner dealt reassuringly only with the current situation.

NEITHER OFFICIAL'S testimony to the Joint Economic Committee, given secretly last June and made public in edited form today, dealt with Soviet efforts to develop an anti-ballistic missile (ABM) defense system as part of the overall program that includes civil defense. Wilson noted, however, that civil defense was related to "various offensive and defensive measures."

A secret new Pentagon study has stirred increasing ter administratior cess in developing for a workable AB a system were de tion of a Soviet-An could protect the some warheads le retaliatory attack.

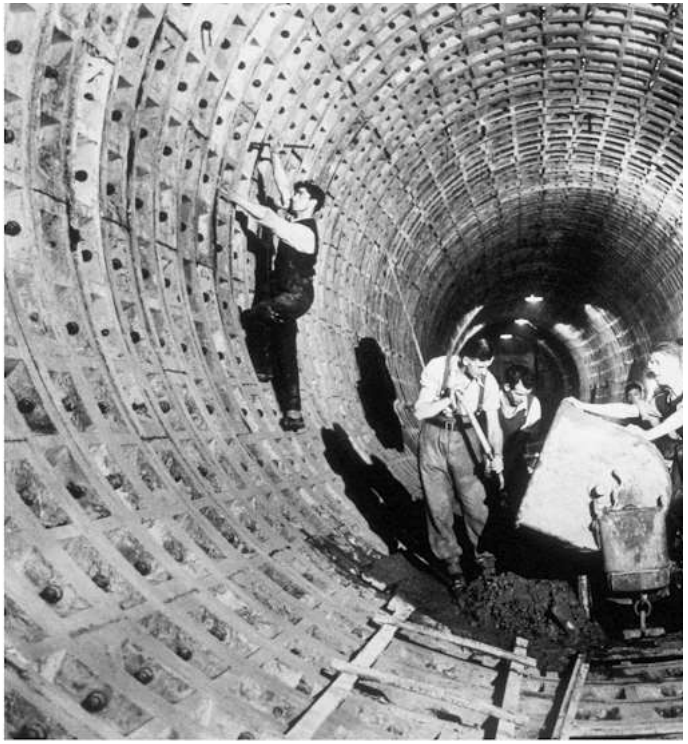
With ABM cove system, by itself i meaningful prote unimpeded missile

...exists between the two superpowers.

PRESIDENT CARTER announced last March that Moscow had agreed to discuss the possibility of an agreement to curtail civil defense work as part of disarmament efforts. But the Soviets have not seemed eager to get the talks going, and the administration has not yet decided on its own negotiating position.

The National Security Council is nearing completion of work on a presidential review memorandum on civil defense, using material from the intelligence community and other parts of the administration. The United States now has virtually no civil defense program to protect the American people from nuclear attack. The study is considering whether this country needs a modern program.

Officials have described Carter as hoping to talk the Soviets out of their program so as to avoid the



Tunnel shelter underground in Londo



WASHINGTON STAR, front page, 1978 on Pentagon warning that Russian civil defense risks WWIII. Russia ignored Carter's request to ban shelters!



London's above ground air raid shelte

Государственная корпорация по атомной энергии «Росатом»

Атомный проект СССР

Документы и материалы

Под общей редакцией Л.Д. Рябева

Том III

Водородная бомба

1945–1956

Книга 2

Составители:

Г.А. Гончаров (отв. составитель), *П.П. Максименко*

Наука • Физматлит

ВНИИЭФ VNIIEF

Москва — Саров
2009

№ 56

Записка Я.Б. Зельдовича и А.Д. Сахарова Ю.Б. Харитону «Об использовании изделия для целей обжатия сверхизделия РДС-6С»

Zeldovich & Sakharov 14 Jan 1954, Secret

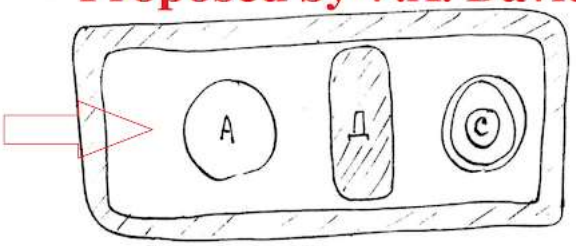
14 января 1954 г.[1]
Сов. секретно
(Особой важности)

Товарищу Харитону Ю.Б.

В настоящей записке сообщаются предварительная схема устройства для АО[2] сверхизделия и оценочные расчеты ее действия. Применение АО было предложено В.А. Давиденко.

Схема **Proposed by V.A. Davidenko**

Boron filling



Предлагаемая система состоит из металлического корпуса (...), разделенного диафрагмой Д на два приблизительно равных объема. Общий вес конструкции около 26–30 тонн.

(...)

В одном объеме находится изделие А[3], в другом — изделие С[4]. Изделия А и С окружены борной заливкой.

(Boron filling)

(...)

Первый период — распространение энергии по изделию А — не рассматриваем; в этом периоде вначале энергия более чем наполовину представляет собой энергию излучения и распространяется по механизму лучистой теплопроводности, однако к концу периода уже вырабатывается ударная волна, скорость которой становится больше скорости диффузии излучения.

(...)

Boron converts x-rays from fission stage A into shock wave, compressing thermonuclear stage C

Исполнено от руки в 1 экз. на 16 листах.
Исп. Зельдович Я.Б. и Сахаров А.Д.
Дело № 4. 14/I. А. Сахаров

Маш. 9/10 оп
14/I 54 г.

Архив ВНИИЭФ. Ф. 1, оп. 3с, ед. хр. 35, л. 7–22. Рукопись Я.Б. Зельдовича и А.Д. Сахарова. Подлинник.

128

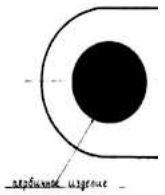
Отчет А.Д. Сахарова и Д.А

A.D. Sakharov a Frank-Kamenet Compression", 9

I. I

Система *атомного*[2] *обжати* новных элементов конструкции

neu



fission stage

(...)

Применяя *атомное обжат* и даже сотни *кг* легкого вещества ки раз превосходящей его начал веществе *термоядерный взрыв* с

(...) **Density comp possible**

дополнитель
III. Ожидае

По предварительным оцен темы *АО* со следующими ори около *15 тонн*. **Mass of**

(...)

При сгорании легкого веще *гатонн ТЭ*

(...) **Yield of pro**

Создание технически совер меньшем *15 тонн*, вероятно, задачей.

Созданию технически совер предшествовать опыт с более п физические принципы АО и н *теоретической* работы.

№ 183

Препроводительная записка Е.П. Славского в Президиум ЦК КПСС с представлением сообщения по результатам испытания изделия РДС-37

Secret 24 Nov. 1955 report by E. P. Slavsky to the Presidium of the CCCP on results of 1.6Mt RDS-37 test

24 ноября 1955 г.
Сов. секретно
(Особой важности)

В Президиум ЦК КПСС

Представляю подробное сообщение т. Завенягина и других по результатам испытания изделия РДС-37, полученное 23 ноября 1955 года.

Приложение: рукописный материал мб. ст-1191оп на 4 листах.

п/п Е. Славский

24 ноября 1955 г.
исх. ст-1398/1

Верно:[1]

[Приложение]

В Президиум ЦК КПСС

22 ноября 1955 г. в 9 часов 47 минут по местному времени на полигоне № 2 Министерства обороны СССР произведено испытание экспериментальной водородной бомбы новой конструкции — РДС-37.

Испытание производилось путем сбрасывания бомбы с самолета Ту-16 с высоты 12 тыс. метров.

Бомба сбрасывалась с парашютом, что дало возможность увеличить время ее падения с 55 до 71 секунды и уйти самолету на безопасное расстояние.

В день испытаний была облачная погода; высота нижней кромки облаков была более двух километров.

Взрыв произошел на высоте 1 550 метров, и благодаря этому огненный шар хорошо наблюдался, пока не поднялся за облака.

Самолеты полностью разрушены на расстоянии до 5000 метров, танки сильно повреждены на расстоянии до 2000 метров, артиллерия получила полные разрушения на расстоянии до 3000 метров.

On 22 Nov. 1955 at 9.47am an RDS-37 was dropped by a Tu-16 flying at 12km altitude.

Parachute delivery gave time for the plane to escape to a safe distance before detonation.

Detonation occurred at 1.55km altitude. Severe damage occurred out to 5 km for planes, 2 km for tanks and 3 km for field artillery.

№ 190

Постановление СМ СССР № 46-31сс о результатах испытания изделий РДС-27 и РДС-37, серийном производстве изделия РДС-27, разработке и изготовлении изделий на принципе атомного обжатия[1]

5 Jan. 1956

г. Москва, Кремль

5 января 1956 г.
Особой важности

USSR Council of Ministers on RDS27 &RDS37

Совет Министров СССР отмечает, что проведенное испытание изделия *РДС-27* и основанного на принципах АО изделия *РДС-37* дало положительные результаты и открывает возможности значительного увеличения мощности изделий при одновременном сокращении расхода *атомных* взрывчатых веществ.

Совет Министров СССР ПОСТАНОВЛЯЕТ:

1. Обязать Министерство среднего машиностроения:

а) приступить к изготовлению изделий, основанных на принципе АО, и изготовить в 1956 г. *10* изделий мощностью *1,7–1,9* млн т и *10* изделий мощностью *0,5* млн т. В 1956 г. подготовить производство на выпуск в течение 1956–1960 гг. в несколько раз больше мощных изделий, чем намечалось ранее;

Orders: 10 bombs of 1.7-1.9Mt yield and 10 bombs of 0.5 Mt yield stockpiled for 1956.

б) организовать в 1956 г. серийное изготовление изделий *РДС-27*;

Order: manufacture (serial production) RDS27

в) разработать и изготовить изделие на принципе АО мощностью *20–30* млн т весом *20–26* т и подготовить испытание его в *III* кв. 1956 г. на *Новой Земле* с самолета *М-4* с применением *парашюта*;

Order: make a 20-30 Mt bomb with a mass of 20-26 tons for air drop testing on Novaya Zemlya using an M-4 aircraft and a parachute.

Записка А.Д. Сахарова, Я. Н.И. Павлову с оце мощностью в 150 мегато

2 Feb. 1956 repor Ya. B. Zeldovich a Davidenko to N.I. Mt and 1,000 Mt

Option 1: ***Товарищу***

Сообщаем оценку параметров из

150Mt device using

Изделие с *дейтеридом лития* быть сделано в следующих габар
1) диаметр ~ *4* метра,
2) длина — *8–10* метров,
3) общий вес — около *100* то

Option 2 (natural

Изделие с уменьшенным расхо *лития* может быть сделано в габа
1) диаметр — *6-7* метров,
2) длина — *18–20* метров,
3) общий вес — около *500* то

Изделие мощностью в *один* по любому из этих двух вариантов ного *урана* в 6-7 раз, а весов делят

Natural LiD fuelled 1 diameter, 18-20 m lo To increase the total Mt in either option 1 Li-6 D or natural LiD simply increase the l charge by factor of 6 times

ABOVE: in 2009, the Russians declassified and published a book containing some original reports on the design and testing of two-stage nuclear weapons from 1954-1956, including 1956 designs for 150 and 1000 megaton bombs using either natural lithium deuteride (7.42% lithium-6 abundance) or enriched lithium-6 deuteride (the enriched 150 megaton bomb has 100 tons i.e. 1.5 Mt/ton yield to mass ratio, but the unenriched one has 500 tons mass, i.e. 0.3 Mt/ton ratio). However, for that year they ordered production of just ten 1.8 megaton yield bombs and another ten 0.5 megaton bombs. They also ordered a 20-30 megaton bomb with a yield of 20-26 tons (i.e. a yield-to-mass ratio

Comparison of U238(n,2n)U237 production by 14.1 MeV neutrons in 1953 Russian and 1954 USA tests

Page 326:

Таблица относительных выходов

Изотопы	Дата взрыва			RDS-6 (Russian
	Castle-Bravo 28.II 54 г.	Castle-Romeo 26.III 54 г.	Castle-Yankee 4.V 54 г.	12.VIII 53 г.
Zr^{95}	0,37 ± 0,08	1,0 ± 0,1	1,15 ± 0,2	0,7
U^{237}	0,9 ± 0,2	1,65	1,9 ± 0,2	4,6

NOTE: Zr-95 abundances are indicative of unfractionated fission products, since it is well American work that Zr-95 doesn't fractionate significantly, relative to U-237 in these Russ

of around 1 Mt/ton) for air burst testing. The 14 January 1954 original design paper by Sakharov and Zeldovich attributes the two-stage idea to Davidenko, but it proposes using a boron filling to convert all of the x-rays from the fission primary into a shock wave to compress the fusion stage. Later, on 9 December 1954, another paper by Sakharov and Frank-Kamenetsky works out the details of a specific design: a 15 ton bomb yielding 7.5 megatons which produces a 10 fold compression of the density of the low density fusion fuel inside a spherical, dense (uranium) pusher-tamper. This was a pathetic 0.5 megaton/ton yield-to-mass ratio. It was only through the efforts of Yuri Trutnev (see quotations from him, later below in this blog posting) that the efficiency of the design was massively improved, *firstly by changing the boron case filling into a spherical layer surrounding the fusion fuel to absorb case-channelled x-rays and convert them into an inward shock wave to compress the fusion fuel only* (not a shock wave from a general case filling that will act in all directions, and blast the bomb apart rapidly).

In their Livermore paper UCRL-74116 (PDF linked **here on the IAEA server** and **here on the US Government's OSTI server**), Nuckolls, Wood, Thiessen, and Zimmerman explain: "... the optimum pulse shape is determined by considerations of entropy and Fermi-degeneracy, hydrodynamics and Raylelgh-Taylor instability, and thermonuclear ignition and self-heating. The required implosion symmetry is achieved by irradiating ... from all sides ... as well as by electron transport in the atmosphere ablated from the pellet. Taylor instability is suppressed by sufficiently rapid imploclon as well as by generating the implosion pressure by subsonic ablation driven by diffusive electron transport. ... These hot electrons transport throughout the atmosphere heating electrons (via electron-electron collisions) to temperatures which increase from one to 10 Kev. The pellet surface is heated and ablated by the hot atmosphere, generating pressures which optimally increase from 10^6 to 10^{11} atmospheres." This paper adds that "hundreds of implosion/burn computer calculations" were

used to identify the optimal Lagrangian implosion pressure-time history equation, and then that equation was used to identify the optimum input x-ray energy pulse shape needed to achieve the optimal Lagrangian for the most efficient thermonuclear fusion. The rate of supply of X-rays from the fission primary stage (or laser in clean burns) is then controlled by the design of the latter and by plastic foam baffles which deliver the X-rays to the fusion capsule. (There is a discussion in Livermore's **UCRL-LR-105821-97-1 (pp. 22 et seq.) of low density foam shells such as aerogels for fusion capsules.**) Another Livermore report, **UCRL-80164**, on *Exploding Pusher Performance* by Rosen and Nuckolls explains that denser pushers work by exploding, with half the mass of the pusher explosing outwards and the remainder imploding inwards and compressing the capsule: "The imploding half of the shell acts as a piston, driving a shock through the DT that principally heats the ions. ... Whereas the high-compression, isentropic implosion targets are sensitive to electron preheat and to Rayleigh-Taylor instability, exploding pushers, by virtue of their rapid thermal wave early heating and by their non-ablative implosion dynamics, are not sensitive to the aforementioned problems." (This paper cites Nuckolls' Secret-Restricted Data UCRL-50000 71-5, 1971, as reference 1.)

On the subject of x-rays and plastic foam: Glasstone and Dolan's 1977 *Effects of Nuclear Weapons, paragraph 7.79 on pages 307-8 states that for a typical nuclear explosion reaching 10,000,000 K temperature, i.e. very soft 4.3 keV predominant x-ray energy (considerably lower energy than medical x-rays which are often well over 50 keV), the mean free path in sea level air is only 15 cm, so that 90% are absorbed within 1 foot of sea level air. Clearly, therefore, sea level air will stop these x-rays from ablating surfaces of a secondary stage more than a foot or two from the primary stage. Howard Morland, Richard Rhodes and Chuck Hansen don't mention this problem for the 1952 Mike design. Was there a vacuum pump to clear the "radiation channel" of the sea-level air that will stop or seriously attenuate virtually all the x-rays? Or is the presence of air in the radiation channel used to diffuse the x-rays in all directions to a uniform concentration, allowing isotropic (similar from all directions) ablation of the secondary? Howard Morland, Richard Rhodes, and a British AWE Aldermaston paper in Nature on the "Science of Nuclear Warheads" (linked and quoted later, below) all refer to polystyrene in nuclear weapons, a plastic with approximately the density of water, i.e. over 700 times denser than air, thus cutting the mean free path of 4.3 keV x-rays to just 0.2mm! So any significant thickness (over 1mm for example) of polystyrene will completely absorb the soft x-rays from a primary stage heating the surface of the polystyrene, although re-radiation can occur from the heated surface, which behaves like a **diffuse or Lambertian reflector**, i.e. Teller's "radiation mirror" in the title of his and Ulam's famouse 1951 report, On Heterocatalytic Detonations I: Hydrodynamic Lenses and Radiation Mirrors.*

If you fill the entire radiation case with polystyrene, however, you get a partition of energy between the kinetic energy of the colliding carbon and hydrogen ions and electrons (plasma) from the heated polystyrene, and x-ray energy which is being produced and absorbed by that ionized plasma. The percentage distribution of energy partitioned between matter and x-ray radiation is a sensitive function of the temperature; the energy in matter being directly proportional to the temperature, while the energy in x-rays is proportional to the fourth-power of temperature (see for instance: H. L. Brode, Annual Review of Nuclear Science, v18, 1968, pages 153-202). For "cold" 1 keV x-rays (2,300,000 K) a large percentage of the energy is in the material plasma, but for "hot" 10 keV x-rays (23,000,000 K), most of the energy is in x-rays even within the plasma. The exact x-ray temperature emerging from the primary stage is a function of the shielding of that stage by hydrocarbon plasma from the chemical implosive system used to compress the primary stage core, and the beryllium neutron reflector. If the primary stage is a 2-point implosion elongated or egg shape, much hotter (higher energy) x-rays will emerge from the smaller-diameter sides which have less shielding than the long axis. For very low energy x-rays from older spherical primary stages,

lower density foams (Seabreeze and Fogbank have very low densities, closer that of air than polystyrene) are used to keep more of the case filled energy in x-ray energy than in the material plasma (ions and electrons), than is the case for polystyrene.

Any such material filling the radiation channel will slow the transit of x-ray energy by diffusing it, which allows more time for neutrons from the primary to arrive and begin to fission (predetonate) any fissile material present in the secondary stage (this is not the case for a clean secondary stage, where those neutrons are actually needed to fission lithium to yield tritium, prior to implosion). Since force is the rate of change of momentum, F = dp/dt, it is undesirable to fill the radiation channel with anything, if you want to maximise the x-ray ablative recoil force on the secondary stage! But do you really want to maximise that impulsive force? Is maximum impulsive force the best way to achieve the greatest amount of secondary stage compression? It turns out, it simply isn't. This was discovered by Nuckolls in the late 1950s and proved in the very clean Ripple nuclear tests during Dominic in 1962. The maximum impulsive compression is given by using a vacuum radiation channel and using the approximately 10 ns width pulse of x-rays from the primary stage to ablate a dense metal pusher on the surface of the secondary stage. But against this factor, you must consider:

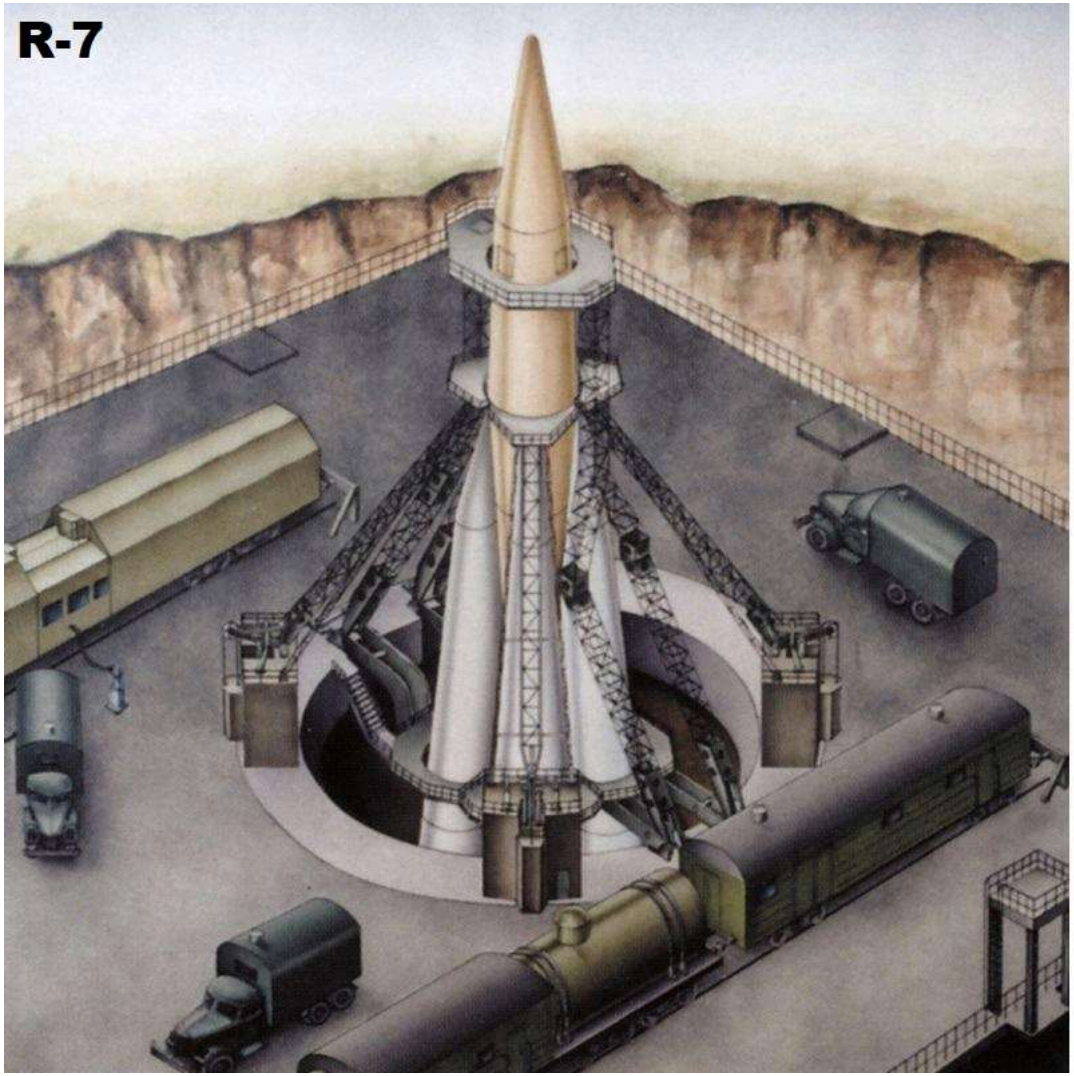
(1) the problem of how to diffuse those x-rays uniformly all around the secondary stage (easy with a foam filling, even for a spherical shaped secondary stage), and

(2) the problem that maximising the ablative force as an abrupt, impulsive shock wave through a dense pusher increases entropy, heating the pusher, whereas a gentler, more nearly isentropic rate of delivery of energy keeps more of the applied energy in the compression of the secondary stage, rather than in heating the pusher. It actually makes no sense, Nuckolls discovered in 1961, to waste any of the limited amount of energy from the primary stage on heating up the secondary stage's pusher by using inefficient, entropy increasing shock compression.

There is confusion possible here over Theodore Taylor's levitated primary stage analogy of swinging a hammer to hit a nail, rather than placing the hammer on the nail and pushing it gently. But this is an illusion caused by the threshold force needed to push a nail into wood: you would not use a hammer blow to push a tin-tack into a cork notice board to hold the corner of a poster to the wall! The hammer is needed for the nail in order to integrate muscle power for a second or so, into kinetic energy of the hammer. You don't have enough power in your arm to drive the nail in by simply pushing the nail into the wood. By analogy, the kilograms of chemical explosive in the primary stage lack the power to directly compress the metal shell to a maximum density, just as your arm can't directly (without the power-integrating mechanism of the swing of the hammer) push a nail into hard wood. In the primary stage, chemical explosives are assisted by having pit levitation, so that the chemical implosion can deliver power into the pusher for a period of time, to give it as much kinetic energy as possible before it hits the hard-to-compress core. Otherwise, the mismatch of acoustic impedance of the low density (carbon and hydrogen ion) explosion debris pushing at the metal pit causes the pit to reflect the energy back, rather than absorb it and be compressed.

This is simply conservation of momentum: throw a thousand footballs at a wall with low energy, one after another, the footballs will bounce off, with minimal energy delivery to the wall and thus minimal compression or net motion of the wall. It's almost an elastic collision; the low density footballs bounce off the wall with almost the same kinetic energy as they struck it! But if you deliver the same energy as a single iron cannon ball, collision is less elastic and more energy is coupled into the wall! This is more useful for pushing the wall. This is not secret or highly sophisticated mathematical physics, but simply the kind of common sense we all have from experience in

the real world. So with the larger amount of x-ray energy from the primary stage, the situation is not like trying to push a nail into hard wood (as for the smaller energy from 20 kg of TNT to compress a metal shell) or to knock a wall down using footballs, but is more like the tin-tack being pushed into cork. Provided that your x-ray ablator (say beryllium) is of relatively similar density to the lithium deuteride fusion fuel you are trying to compress, there is little acoustic mismatch and energy is then coupled efficiently rather than reflected. So you are in the situation of being able to push a tin-tack into cork, rather than having to swing a hammer blow on a nail. If there is a dense fissile "spark plug" in the centre of the fusion stage, it can be levitated to ensure it is delivered a hammer blow by a dense pusher shell.





2 Mt R-7 ICBM thermonuclear warhead weighing 2.9 tons.

Note the liquid fuel deli train waggon (shown le

240

РАССЕКРЕЧЕНО

Сов.секретно
(Особая важность)

д 240-241
заключение от 08.06.07
п. 6

В ПРЕЗИДИУМ ЦК КПСС

Согласно Постановлению Совета Министров СССР от 20 мая 1954г. Министерство оборонной промышленности (НИИ-88, главный конструктор т.Королев С.П.) разрабатывает баллистическую ракету Р-7 для транспортировки специального заряда типа РДС-6 на дальность 8000 км.

По расчетным данным указанный заряд типа РДС-6 имеет мощность порядка 1,5 млн. тонн тротилового эквивалента и вес его вместе с аппаратурой автоматики был задан 3400 кг.

В результате проведенных в ноябре 1955г. испытаний водородной бомбы, построенной на новом принципе обжатия выявилась возможность создания для ракеты Р-7 нового водородного заряда мощностью около 2,0 млн. тонн тротилового эквивалента и весом 2900 кг.

В соответствии с решением ЦК КПСС от 5 января 1956г. вопрос о размещении нового водородного заряда в ракете Р-7 проработан НИИ-88 МОП совместно с представителями МСМ, при этом установлена возможность разместить новый заряд в головном отсеке ракеты.

Снижение веса нового заряда против ранее заданного веса заряда типа РДС-6 позволит увеличить дальность полета ракеты Р-7 на 200-300 км.

Применение в ракете Р-7 нового заряда не влечет за собой изменения срока начала зачетных испытаний, ранее установленного Правительством.

Просим рассмотреть и утвердить представляемый проект Постановления Центрального Комитета КПСС и Совета Министров СССР по данному вопросу.

Приложение на 4 лл об 2 экз

ЦЕНТРАЛЬНЫЙ КОМИТЕТ КПСС и СОВЕТ

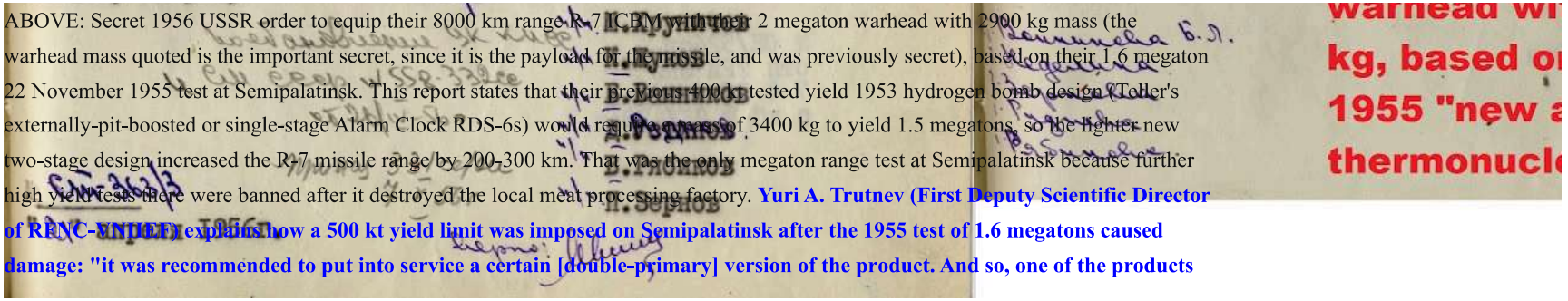
ПОСТАНОВЛЕНИЕ №

Москва, Кремль "

В целях вооружения баллистической
более мощным водородным зарядом
Совет Министров СССР, в частичное изме
Министров СССР от 20 мая 1954 г. № 956

Принять предложение тт.Хруничева,
нова, Рябикова, Зернова о применении в
Р-7 нового водородного заряда мощн
тротилового эквивалента, имеющего вес
матика, взрывательные устройства, элек
2900 кг, взамен специальног
мощностью 1,5 млн. тонн тротилового э
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SECRET 195
Ministers de
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ABOVE: Secret 1956 USSR order to equip their 8000 km range R-7 ICBM with their 2 megaton warhead with 2900 kg mass (the warhead mass quoted is the important secret, since it is the payload for the missile, and was previously secret), based on their 1.6 megaton 22 November 1955 test at Semipalatinsk. This report states that their previous 400 kt tested yield 1953 hydrogen bomb design (Teller's externally-pit-boosted or single-stage Alarm Clock RDS-6s) would require a mass of 3400 kg to yield 1.5 megatons, so the lighter new two-stage design increased the R-7 missile range by 200-300 km. That was the only megaton range test at Semipalatinsk because further high yield tests there were banned after it destroyed the local meat processing factory. **Yuri A. Trutnev (First Deputy Scientific Director of RFNC-VNIIEF) explains how a 500 kt yield limit was imposed on Semipalatinsk after the 1955 test of 1.6 megatons caused damage: "it was recommended to put into service a certain [double-primary] version of the product. And so, one of the products was delivered to the Semipalatinsk test site for testing, a product developed under the guidance of Evgeny Ivanovich Zababakhin. He claimed that the power of the explosion would be on the order of 0.5-0.6 megatons. I note that at that time there was a ban on carrying out explosions with a capacity of more than 0.5, because as a result of an explosion with a capacity of 1.5 megatons, the Semipalatinsk meat processing plant was destroyed. And here we are, no weather, nothing to do, I decided to read the reports. I took Zababakhin's report, I compare the calculations with ours, and I see: yes, there is not 0.5, not 0.9, all 1.5 megatons should work out there! I could be silent, but if 1.5 megatons will again "destroy" the meat processing plant? At one of the meetings, I reported this to the test leader. As Zababakhin fell on me: "This is a disgrace, this is not the case, this is ugly! You specifically say to remove our bomb from the tests. Honest people don't do that!" I suggested: "Let's see together." He did not look at anything, slammed the door and left. And it's good that they didn't try it! Because the next year in the north we blew up our version of the product and received about 0.6-0.8 megatons. On the occasion of our success, they poured me a glass of cognac: "For the victory!" It is noteworthy that it was February 23, 1958, the day of the Red Army. In the same year, 1958, we began to prepare the next session on the basis of the 49th project. There were attempts to delay the tests, and the ministry had no desire to test products of lower power. ... And they tried it, and everything worked out. This development subsequently became the most important basis for improving the thermonuclear arsenal of our country."** In addition to moving to double-primary theormonuclear weapon design, they also finally conducted their first ever gaseous tritium and deuterium boosted plutonium pit primary stage test on 28 December 1957, yielding an "amazing" 12 kt (below).

First tritium and deuterium gas boosted plutonium primary stage gave "amazing" 12 kt, 28 December 1957!

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Сов. ~~Совершенно~~ РАССЕКРЕЧЕНО

(~~Особой важности~~)

Рассекречено протокол 4(1)
Акт 24.45 ГК Росатом
от 14.04.15 № 56 п. 287
Подпись 12.05.15

Товарищу ХРУЩЕВУ Н.С.

Товарищу БУЛГАНИНУ Н.А.

Докладываю, что 28 декабря 1957 года в 10 часов утра по московскому времени на полигоне № 2 Министерства обороны СССР, в соответствии с утвержденным планом, был произведен взрыв атомного устройства с целью изучения нового способа повышения эффективности использования плутония в атомных зарядах за счет добавления небольшого количества газообразной смеси дейтерия и трития.

Результат опыта положительный.

Прилагаю телеграмму тов.Боболева (руководитель испытания) и др., полученную с полигона о проведен-

ном испытании.

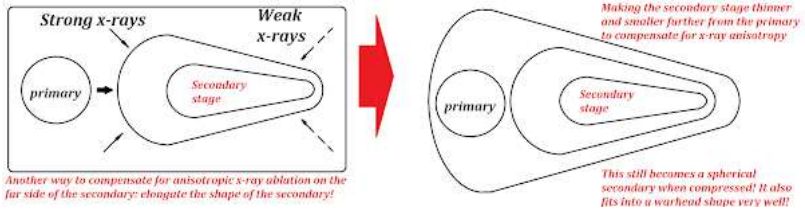
Слав Е.Славский

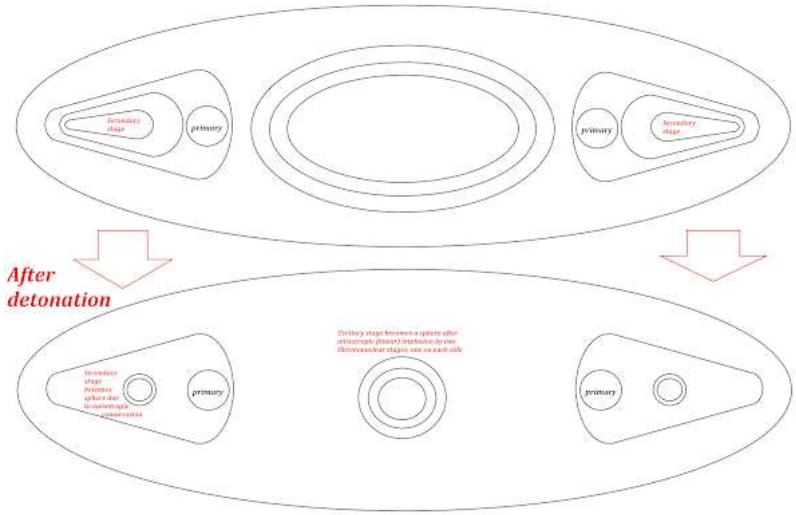
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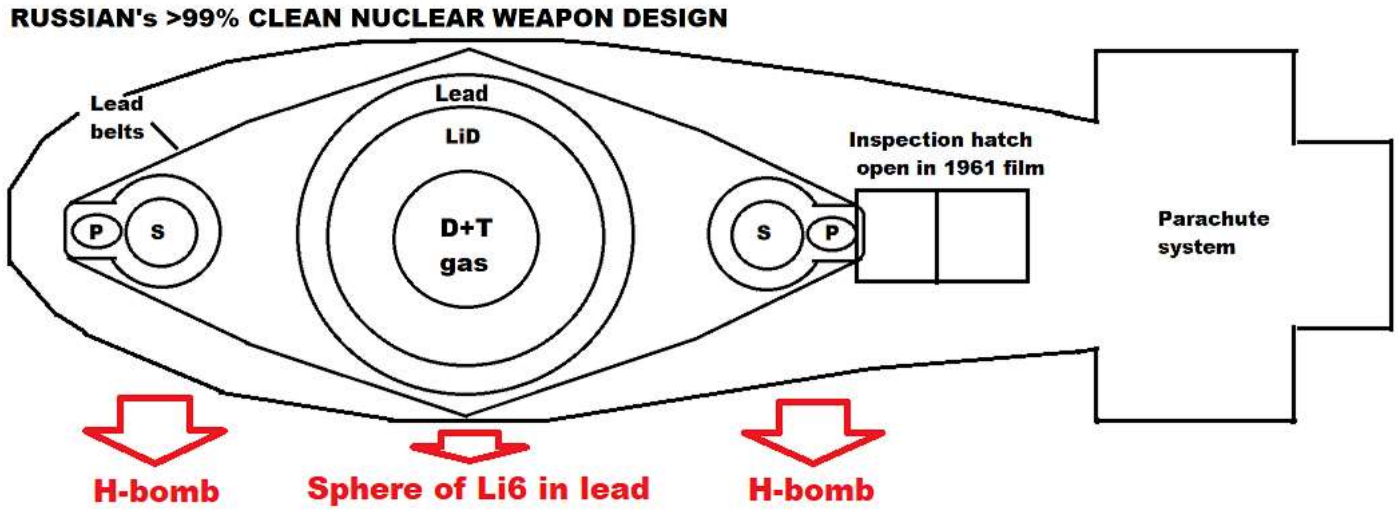
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шифртелеграмм Шо архивов

Кол. лист.	1+2
Вх. №	2/Ш
Дата	3.I.58 г.





How elongated fusion stages are compressed into spheres for maximum fusion efficiency by anisotropic x-ray delivery





ABOVE: how to uniformly compress a secondary fusion stage using x-rays without problems from the reduced x-ray intensity on the side of the secondary which is furthest from the primary stage (*due to the "x-ray shadow" created by self-shielding on the secondary's far-side from the fission primary stage, by x-ray shielding due to the presence of the secondary stage itself*). This problem has several possible

solutions which are discussed in detail later in this post, including quotations from the actual Russian nuclear weapons designers articles and declassified reports. On April 10 and 16, 1957, Russia tested shaped new, improved two-stage thermonuclear designs, yielding 680 and 320 kt, respectively. The final R-7 warhead design, RDS-46A, was proof-tested on October 6, 1957, yielding 2.9 megatons. (*Since elongated secondary aka thermonuclear stages become spheres when subjected to linear implosion from two primaries, or two two-stage thermonuclear devices as in the 50 megatons Tsar Bomba and lower yield cleaner devices, and since pear or egg shaped secondary stages become spheres when properly compressed by the anisotropic x-ray exposure from a single primary in devices without foam equalizers filling the case, we will generally depict secondaries as being spheres later in this post; even when they are elongated prior to compression*.) It turns out that the first Russian two-stage device tested in late 1955 with 1.6 megatons yield (it was designed to give 1 megaton) had a secondary stage which was a sphere when compressed (*it may however have been egg or pear shaped prior to compression, as shown above*, in order to allow for the anisotropy of x-ray delivery to a spherically-compressed secondary stage when using a single primary, without the use of a foam filling to disperse x-rays to a uniform energy density throughout the case). The **designer testimony (Yuri Trutnev**) states that the secondary stage used in 1955 had a *low-density* ablative material layer (e.g. beryllium metal, or plastic foam) around it (not filling the entire radiation case, unlike Western designs with spherical secondary stages).

Yuri Trutnev: ***"I knew that when they explode, a lot of energy comes out in the form of x-rays. And I began to think about how to make it so that the thermonuclear charge is overlaid with a light substance - "coating", these can be chemical elements with a low number, having very good thermal conductivity, and with the help of X-ray radiation from the explosion of the primary atomic charge "coating" heat up. At the same time, its substance would evaporate outward, towards the radiation, and as a result, as during the movement of a rocket, a reactive impulse would be created, directed into the secondary charge and creating the pressure necessary for effective compression of the thermonuclear "fuel"."*** **(The day after seeing that successful 1955 test, Yuri Trutnev told his colleague Yuri Nikolaevich Babaev another idea, the idea for using two primaries, one on each side of the secondary stage, which was assigned product number 49, weaponised by the deputy director of the lab, and air drop tested on February 23, 1958, becoming the basis for today's cheap thermonuclar warheads made by Russia;** ***all of this will be discussed later in detail in this blog post, since*** **.)** This would have caused a far gentler (slower) compression of the secondary stage than when using a dense U238 or lead ablator, thus increasing what Lawrence Livermore National Laboratory weaponeer Nuckolls calls "approximately **isentropic" (unchanged entropy) shock compression**, which is more efficient since more of the compression energy remains in compressive mechanical work, rather than being turned into heat energy (you want the secondary stage to be as compressed as much as possible without wasting that energy as heat; heat is generated by fission in the compressed oralloy layer or the spark plug core of the secondary stage, or in clean secondary stages, in fusion of D+T gas in the core, following its extreme, isentropic compression, as used by Russia from 1965 for more efficient thermonuclear weapons).

ABOVE: the Russian 1955 thermonuclear weapon with a *low density ablator* is similar to a system described for evaluation purposes in a declassified 2011 Jason report, *Hydrodynamic and Nuclear Experiments* (JSR-11-340, Secret-Restricted Data before deletions such as the deletion shown above) on pages 72-3 compares the shock compression versus the isentropic compression of beryllium coated plutonium pits in nuclear weapons by different shapes of x-ray energy pulse. It notes on page 21: "The National Ignition Facility [NIF] utilizes laser drive to compress samples *using shock or quasi-isentropic compression* [Emphasis added], potentially to in excess of 100 Mbar. Currently, samples have been ramp compressed to 50 Mbar. It can also be used to explore high strain rates (up to 10^7 /s). It has not yet been qualified

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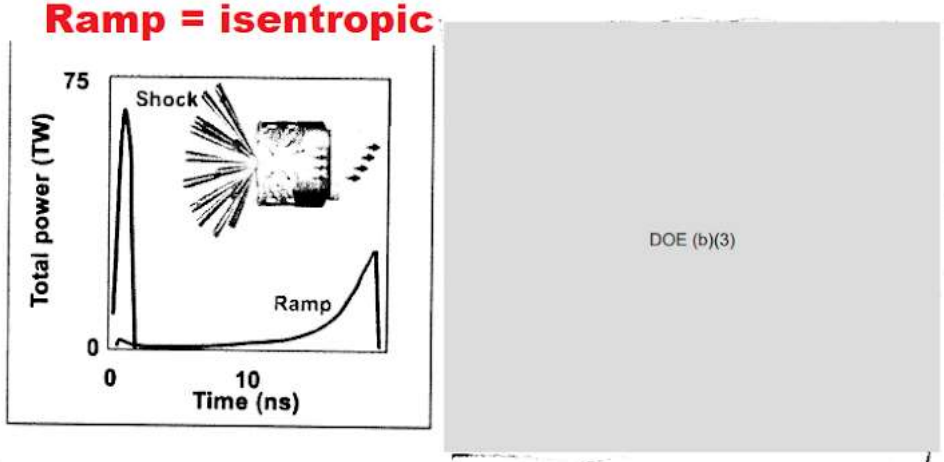


Figure 24: Left: the use of pulse shaping on NIF to produce either shock compression or ramp compression.

DOE (b)(3)

DOE (b)(3)

initially shock compress Pu and then drive it isentropically in a way similar to the environment experienced by a Pu particle in an imploding primary. The concept is shown graphically in Figure 24. Of course, the actual design of the appropriate pulse shape requires careful measurements but the initial experience with the NIF laser is encouraging. It has been repeatedly demonstrated that one can "program" a pulse of a given shape and the laser produces the desired pulse with impressive repeatability.

Questions have arisen regarding the accuracy of the measurements that will be achieved, and the extent to which ramp compression will be possible. For example it may not be possible to maintain isentropic compression at very high pressures without suffering formation of a shock in the material. This will require further investigation. On the other hand, the recent work on diamond to 50 Mbar and Ta to 6 Mbar is encouraging. In Figure 25 we show results from explorations of the Ta EOS on several platforms. The results shown correspond to isentropic compression As can be seen the new NIF data are in good agreement with previous data from the Omega laser and are also in agreement with data obtained on the Z pulsed power platform at SNL. The results are the highest pressure off-Hugoniot data achieved to date.

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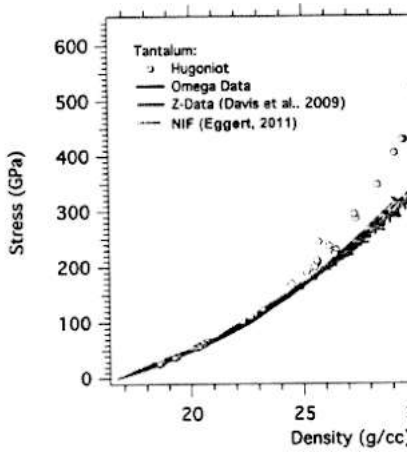


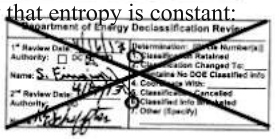
Figure 25: Measurements of the off-Hugoniot Ta E forms.

No Pu experiments have yet been performed o require work to ensure that the appropriate safety i have been voiced that the type of Pu that could be material which typically is alloyed with Ga, has va differing isotopic compositions. In addition, it is Pu samples on NIF also will not match that of wea However, in our view this is not a compelling objecti of fundamental measurements it is important to g (both with and without Ga) as this high pressure theoretical approaches to characterize the more Ultimately, of course, it will be be necessary to inve grade material and these issues will have to be ad

We next discuss the possible use of laser platf at high pressure. Remington et al [54] have dev investigate various strength models. The basic id is aimed at a gold hohlraum which then produc impactor which becomes a plasma after absorption

to handle Pu, but has provided important data on surrogates such as Ta." Shock compression is an abrupt hammer-blow produced by a fast-rising, brief pulse of x-ray energy, whereas the less abruptly rising pulse of isentropic compression is a reversible adiabatic pressure wave such as sound waves, which for high energy densities must be produced by a more gradually ramping, longer pulse of increasing energy density; this increases the proportion of the energy in kinetic energy of particles (dynamic pressure) rather than in internal energy (overpressure and heating). Real shock compression waves violate thermodynamic physics, but quasi-isentropic compression is possible. A simple analogy is hitting a door with a hammer blow, versus gently pushing a door closed. Hitting the door wastes some energy in sound waves, oscillations, and heating, causing a large, abrupt and wasteful rise in the entropy of the system, whereas a gentle push drives the door efficiently and delivers energy which goes into kinetic energy of motion of the door causing it to pick up momentum efficiently and swing in the desired direction, minimising the energy wasted as sound, oscillations and heating. For a gas, isentropic flow does not imply that *temperature* is constant, only that entropy is constant:

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Hydrodynamic and Nuclear Experiments (U)
November 2011
JSR-11-340
JSI-2011-027 Copy C/6



Pages 72-3 and Fig 26 on p73 show how "X-rays drive a plasma 'hammer' that quasi-isentropically compresses the target", the target "anvil" being beryllium-coated rippled-interface plutonium

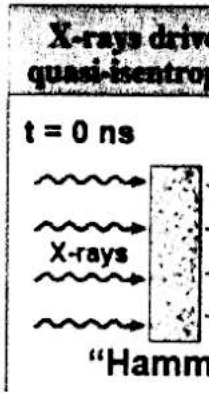


Figure 26:

Change in entropy,

$$\Delta S = nC_v ln(T/T_o) + nRln(V/V_o)$$

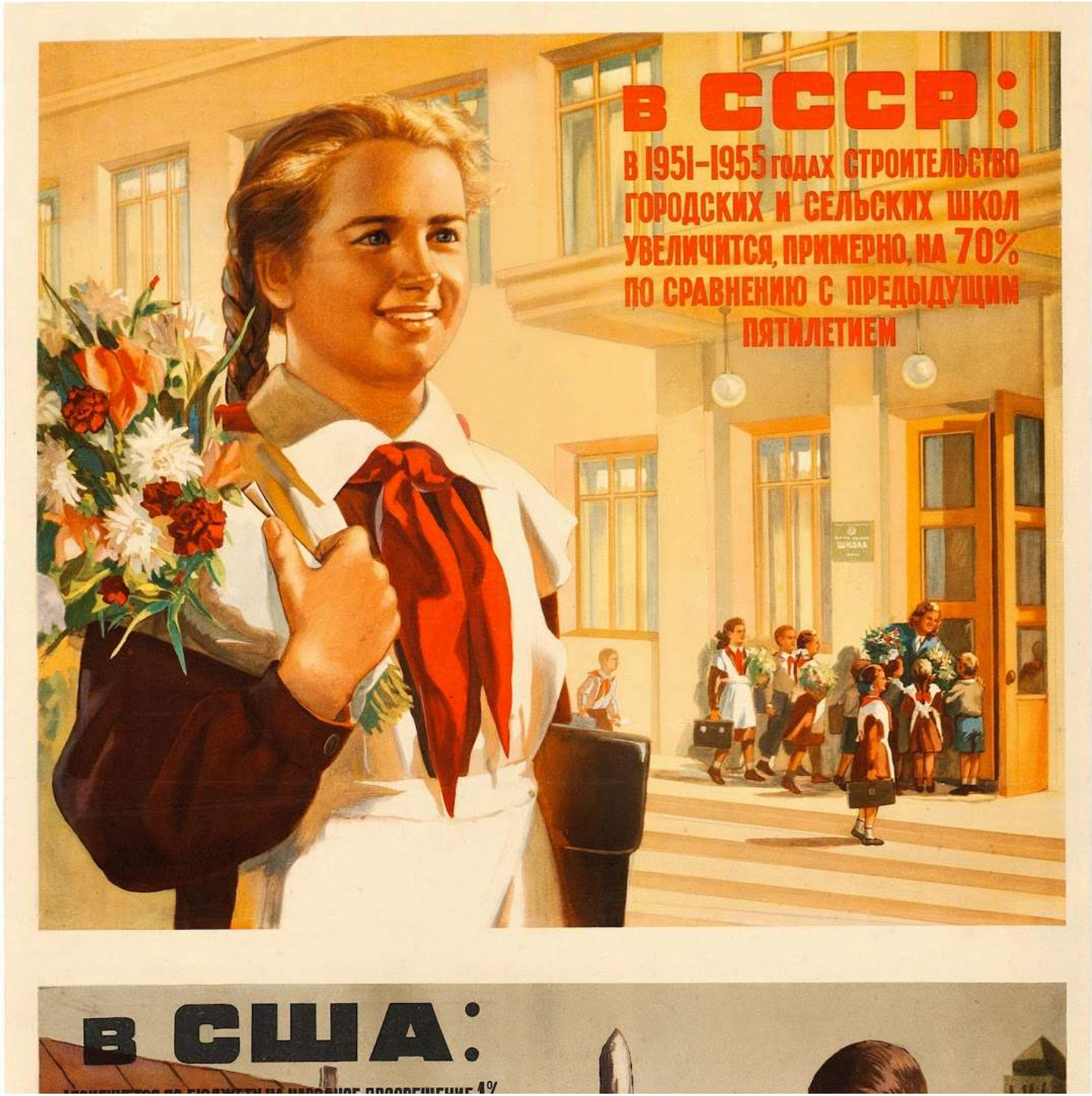
Hence, for isentropic compression (no change in entropy):

$$\Delta S = 0$$

Therefore:

$$C_v ln(T/T_o) = -Rln(V/V_o)$$

ABOVE: **We can get rid of the natural logarithms in this isentropic solution, $C_v ln\ (T/T_0) = -R\ ln\ (V/V_0)$, by raising both sides to become powers of the base, e, thus: $T/T_0 = (V/V_0)\ exp(-R/C_v) = (V/V_0)\ exp(1 - gamma)$. Nuckolls et al provide the idealized equation for the x-ray delivery rate of energy required for *isentropic compression* of the secondary (fusion) stage in nuclear explosives, in a paper openly pubished in *Nature,* v239, p139, 1972 (extract is linked here)**: $(1 - t)^{-1.875}$ where the 1.875 is from 3{gamma}/{gamma + 1} = 15/8, gamma being the ratio of the specific heat capacity at constant pressure to that at constant volume, for dense hydrogen with degenerate electrons (where gamma = 5/3), and t is time measured in units where 1 unit of time is the time taken for the shock wave to reach the centre of the secondary stage. You can't ever achieve this idealized isentropic energy rate, but you can do your best (*any* movement of the curve from an abrupt shock to a gentler rise increases the isentropic conpression contribution relative to shock compression, so it is not true that you need a "perfect" fit to the idealized isentropic pulse delivery curve, which approaches infinity in the asymptotic end limit anyway!), and Dr John Nuckolls successfully proof tested this "Ripple" concept with multimegaton 99% clean atmospheric nuclear tests during Operation Dominic in 1962, which will be discussed in detail later. The quasi-isentropic compression in the 1955 Russian thermonuclear test with a low-density x-ray ablator rather than the high-density ablators used by America, may account for the fact the yield was 60% greater than predicted (presumably the prediction ignored isentropic compression): 1.6 megatons measured, versus 1.0 megaton prediction. Since the Russians did not use tritium plus deuterium gas in the core of their secondary stage in 1955, the contribution of isentropic compression was probably marginal, but the low-density ablator would have come into its own when Russia placed deuterium plus tritium gas into the core of the fusion charge in their 27 October 1966 test, yielding 700 kt. Russian has always prided itself on over-educating its population in advanced physics (poster below).

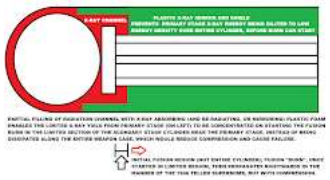

В СССР:
В 1951–1955 годах строительство городских и сельских школ увеличится, примерно, на 70% по сравнению с предыдущим пятилетием
ШКОЛА
В США:



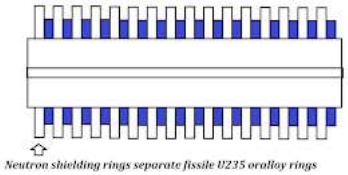
Compared: Schools in the USSR and the USA. Moscow, 1955

Our point here is just that the Russians seem to have replicated the *TWO* key features of the isentropic Ripple design (a low density ablator to replace a dense ablator, and T+D gas in the core of the fusion charge) and compressed these into smaller devices for MIRV warheads ***(an approach rejected by the USA, despite its rhetorical use to attack Russian competence, by AEC Chairman and plutonium discoverer Glenn T. Seaborg in a tape-recorded secret response to President Kennedy's question of what Russian nuclear warhead designers would make of the secrets of the American thermonuclear warheads; this issue will be discussed further, later in this blog post*).** Isentropic compression nuclear warhead design details were **declassified because of its alleged relevance to "clean nuclear fusion power" pipe dreams**. In reality, this is purely clean nuclear weapons research, because to make it efficiently generate electric power you'd need to be setting off huge H-bombs regularly to generate significant heat to justify the expense! The declassified 1955 two-stage Russian thermonuclear case design was called by the Russians "pear-shaped", possibly due to the fact that *a pear-shaped secondary stage, when compressed by the anisotropic x-ray environment produced by a single fission primary stage, becomes an ideal sphere with maximum fusion burn efficiency* (above) for that single primary design (without a foam x-ray diffusive equalizer, which slows down the x-ray ablative secondary stage coupling mechanism, thus increasing the number of neutrons that arrive in the secondary stage prior to full compression, leading to the need for a neutron shielding interstage to prevent pre-detonation of an oralloy loaded secondary). **There is also a relevant 1975 US patent, "Foam encapsulated targets", US4376752, by nuclear weapons designer John H. Nuckolls (who has explained elsewhere, as we will quote below in this post, how such research led to four successful isentropically compressed, very clean megaton tests during 1962, authorised by Kennedy) and two others which states: "... a quantity of thermonuclear fuel is embedded in low density, microcellular foam which serves as an electron conduction channel for symmetrical implosion of the fuel ...").**

Nuckolls explains the physics of spherical stage thermonuclear burn efficiency beautifully in his 1973 report UCRL-74345: "The rates of burn, energy deposition by charged reaction products, and electron-ion heating are proportional to the density, and the inertial confinement time is proportional to the radius. ... The burn efficiency is proportional to the product of the burn rate and the inertial confinement time ... Much higher pressures are required if the electrons in the high density DT are not Fermi-degenerate, i.e. if the implosion is not essentially isentropic. The pressures applied to implode the pellet must be uniform spatially and temporally to less than one part in twenty in order to preserve effective spherical symmetry. ... The hydrodynamlc Rayleigh-Taylor Instability must be controlled. Otherwise the pellet surface cannot be relatively gradually accelerated during the implosion as required by the optimum pulse shape." Nuckolls also states on page 15 that most of the energy supplied to the fusion capsule is lost in the ablation process (the hot blow off material has the velocity of sound for the heated surface temperature) so that only a coupling efficiency (i.e. the fraction of supplied x-ray energy that results in implosive compression of the secondary state) of 2-15% is available to compress the fuel; this coupling efficiency is given by the very simple equation: (1/2)v/C, where v ~ 10-300 km/s, is the fusion capsule implosion velocity, and C ~ 200-1000 km/s, is the velocity of sound for the blown-off plasma.



There are still issues with the design shown on the left: e.g., a fissile spark cylinder (or U235 aka oralloy pusher) can't be made arbitrarily long without becoming critical.

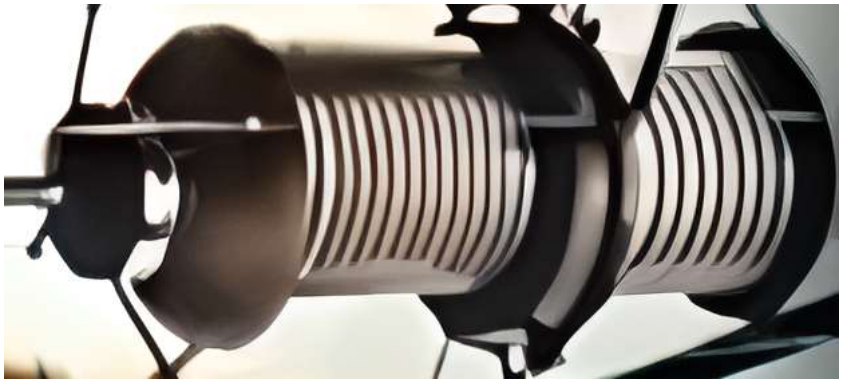


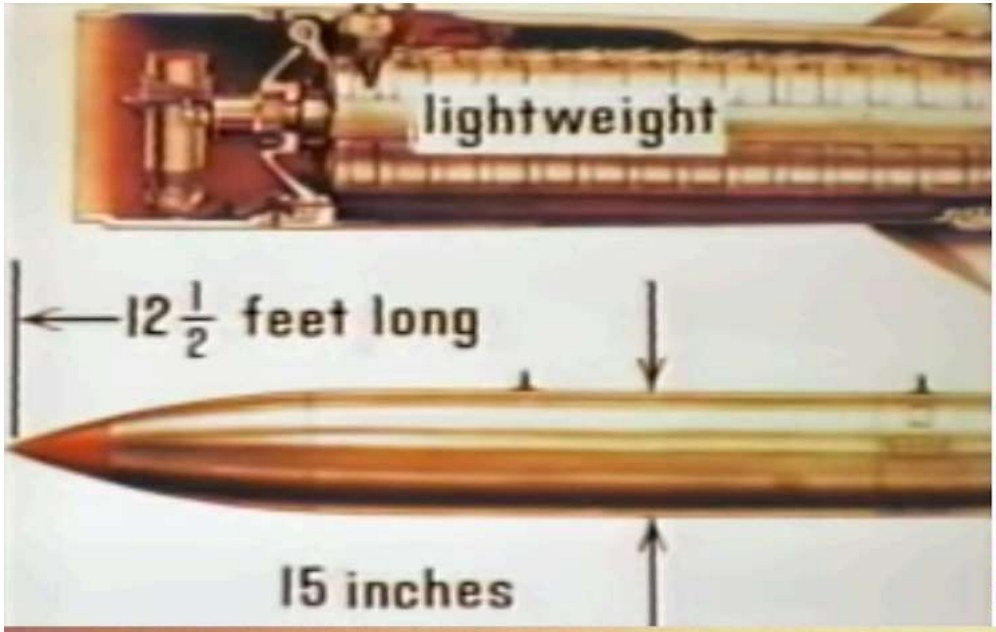
Neutron shielding rings separate fissile U235 oralloy rings

ABOVE: the American problem with discarding the 1962 isentropic breakthrough and instead using an expensive highly-enriched U235 aka "oralloy" ablative "pusher" (external spark plug around the fusion fuel capsule in the secondary stage of classic cylindrical shaped American two-stage devices), to increase the yield-to-mass ratio for compact nuclear weapons like the B61 and its alleged smaller derivative the W80, is the *critical mass of the oralloy pusher.* You can't put a whole load of U235 concentrated in the bomb's secondary stage to give a huge yield, or it is critical (and you have a nuclear reactor, not a bomb!). One solution to this critical mass issue in secondary stages, particularly for cylindrical secondary stages, is for relatively small rings of oralloy to be separated by larger diameter neutron absorbing "washers" of, say uranium-238 or possibly lithium deuteride (above right; oralloy is colored blue, U238 washers are white), as suggested by the **declassified nuclear weapons film, *Developing and Producing the B-61* (see 10 minutes, 7 seconds into the video - screenshot below - where the B61's entire secondary stage assembly is seen undergoing "criticality studies of the nuclear assembly", and compared to 12 minutes 21 seconds where the partial assembly components of both pit and secondary stage are displayed). This film also shows an axial rod through the centre of the secondary stage and an x-ray baffle separator in the middle of the secondary stage, which we will ignore for the present. Teller's original "sausage" secondary concept was for a series of secondary stages connected like sausages, x-ray irradiated and imploded one at a time, with baffles separating them, because if there was just one very long cylinder, the axial fissile spark in will be initially compressed properly only near the primary, and then will pre-detonate itself along the remainder of the spark plug before the remainder of the secondary has been compressed (the x-rays may go a light velocity in a vacuum, but the compression of the secondary, whether by shock or isentropic, is much slower!). Details of the axial central rod through the B61 secondary stage are shown below, in stills from the same declassified film.**



View of the axial rod running through B61 bomb, as seen in declassified film *Developing a*









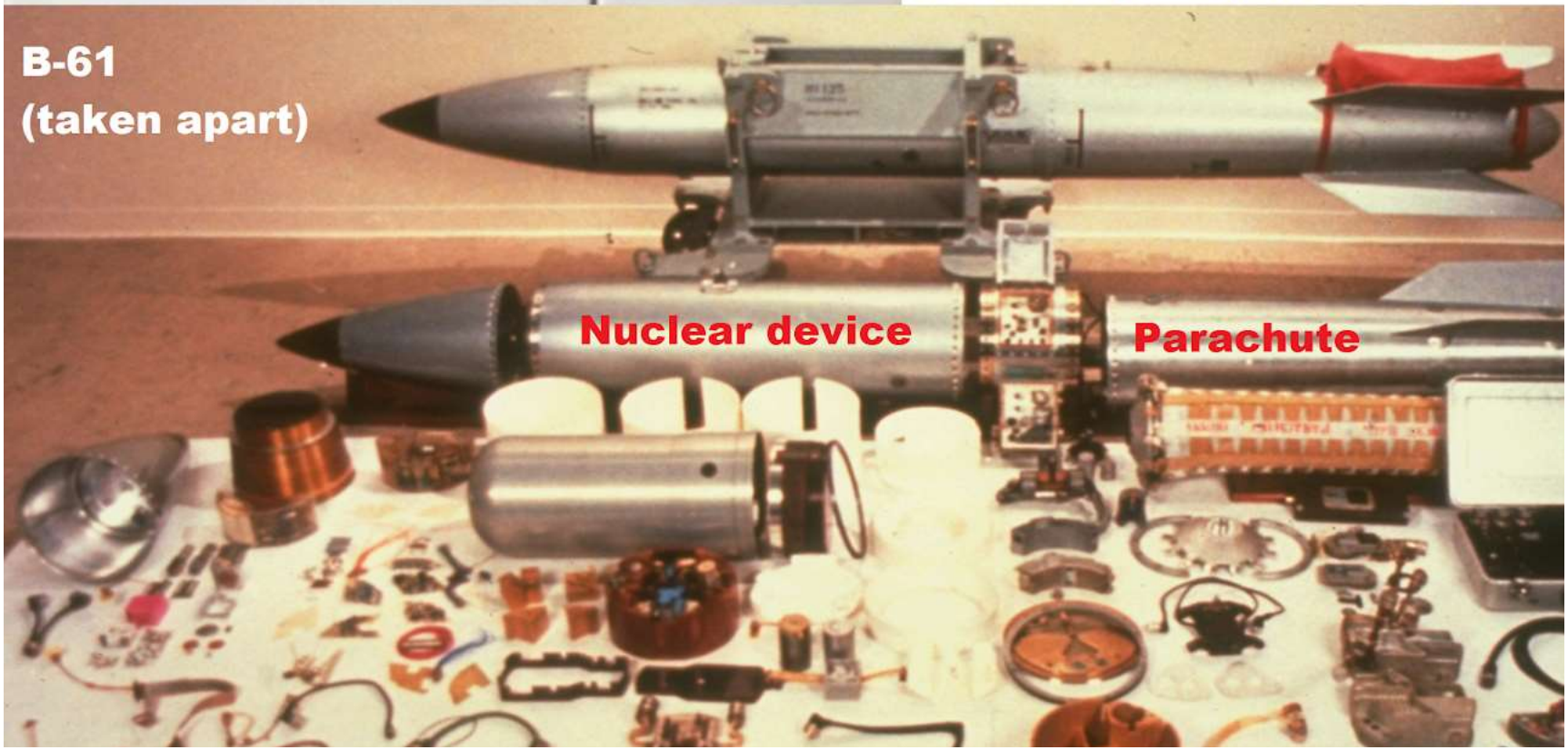
ABOVE: **B61 secondary stage assembly seen undergoing a criticality test in declassified film *Developing and Producing the B-61* (cropped and rotated).**

ABOVE: **B6 to be place X-unit (stil film *Develo B-61*). Axia**

The rings in the secondary stage assembly a the right of the central x-ray baffle.

RIGHT: **central axial rod seen in the B61-4 trainer (similar yields to B61-12)**









The alternating rings along the secondary stage in this design makes the surface area of the secondary stage rippled, a concept that increases its surface area for absorption of x-rays, which was the original motivation for Teller's ambitious but failed 1954 Morgenstein

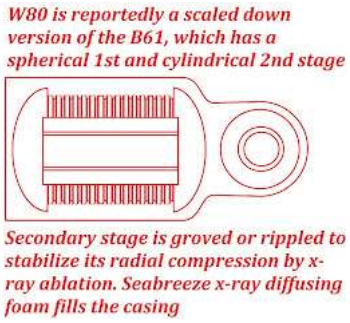


(spiked secondary stage Operation Castle shot 3) nuclear test at Bikini Atoll. Even excluding the issue with computing and achieving the geometry of isotropic compression of a sphere by radiation from a single primary, Teller at first did not want the spherical secondary stage (used by Russia in 1955) in American nuclear weapons, because the soft 1-10 keV x-rays that couple energy between stages are absorbed in a very *thin surface layer* of the secondary, so the surface area of the secondary stage is crucial, and is minimised (not maximised) for a

spherical shape. *This means that, because a sphere mathematically has the MINIMUM surface area to volume ratio of any shape, a sphere absorbs the MINIMUM possible fraction of the x-rays from the primary stage. So the sphere is the WORST design possible, if you want to maximise the coupling of x-rays to the secondary stage. This is not speculative or a matter of secret computer designs of classified weaponry: it is very simple mathematically for a kid to prove that far more x-ray energy will be absorbed by the inside of the weapon casing than on the outer surface of a spherical secondary stage*. Teller's Livermore laboratory, however, even in 1954 at the Morgenstein test of Castle, tried to get around this problem of the small surface area absorption of soft x-rays by the surface of a sphere, *by hugely increasing the surface area of the "sphere" by making its surface "spiked" or convoluted so it will absorb a larger fraction of the x-ray energy from the primary stage.* This may also improve the stability of axial compression in a cylindrical secondary stage, where (unlike early designs like Mike in 1952) a very small primary (5 kt unboosted or 10 kt boosted) is used to axially compress just a *very small part of the secondary stage near the primary stage in an x-ray radiation channel confined by a seabreeze x-ray baffle foam*.

In the Mike "sausage" and other earlier Castle nuclear designs, x-ray baffling foam was not used in this way to fill most of the case and create a radiation channel confining the initial fusion burn region, but was just used as Teller's "x-ray mirror" (a layer of plastic hammered on the the lead lining of the steel case with nails, to reflect some x-ray energy back on the secondary stage, and to prevent high-Z lead ablation debris quickly filling the radiation channel and killing the coupling). So it appears the Mike "sausage" design required a larger yield primary stage to compress the entire clyinder, whereas the use of x-ray attenuating foam to limit initial exposure of the secondary stage to a few rings near the primary, reduces the size of the required primary. Once the fusion burn begins in a limited part of the secondary, it releases x-rays which then help to compress and ignite fusion in the remainder (this is the brains of the American secondary design, requiring very sophisticated computer modelling as well as back-up nuclear testing to verify them). A declassified film of the B61 shows the secondary stage of the B61 (and presumably its scaled down version, the W80) being tested, a rippled cylinder with rounded shielding end caps (below). *This appears to be an entirely different concept to Russian nuclear warhead design*.





Another option, which the Russians first tested very successfully in 1958, is to simply put two smaller fission primary stages into a radiation case, one on each opposite side of the fusion capsule, as shown below, with the two sets of neutron initiator tubes and detonators, corrected in parallel circuits - there is a delay between conventional explosives and neutron guns firing to allow for the time it takes to compress the fissile cores - via high-current, fast vacuum tube switches called krytrons. However, Britain and America (for reasons discussed later, below) completely ignored this possibility, and the American Los Alamos nuclear weapons designer of devices Scorpion, Hamlet, Viper, Davy Crockett and King, Dr Theodore Taylor, dismissed the key Russian double-primary thermonuclear warhead design



when presented with it by author John McPhee: ***"'The shape tells you a lot about H-bomb design,' Taylor said again. 'But not enough.' I drew a sketch of a hydrogen bomb showing a cylinder full of thermonuclear fuel, with two fission bombs, one at each end ... he said, 'Nice try, but that is not what happens'."*** (This quote from J. McPhee, *The Curve of Binding Energy,* Farrar, Straus and Giroux, NY, 1974, p149. This dismissive error was then repeated again in response to Chuck Hansen's 27 August 1979 letter to Senator Charles Percy of Illinois, which contained the diagram shown below, which Howard Morland dismisses incorrectly in his book, *The secret that Exploded*. This casual dismissal of double primary designs may well mean American efforts to deduce Russian nuclear weapon design from fallout samples by analogy to the designs America tested in the past, were plain wrong. Certainly, Russia tested two-stage, single-primary weapons; but their most compact efficient designs are provably double-primary for 0.1-1 megaton yields and use *two thermonuclear* stages for both cleaner and 1-100 megaton-yield fusion tertiary stages.)



On 23 February 1958, Russia tested the new, radical Babaev-Trutnev compact design of thermonuclear weapon (*above;* detailed documentary evidence from multiple sources is provided later in this post), a pipe containing a spherical fusion stage sandwiched between two fission (primary) implosion charges, wired in parallel circuit for simultaneous firing via a krytron high speed, high current vacuum tube switch. This was a relatively small diameter 860 kiloton deliverable thermonuclear weapon, weaponised by **Vladimir Fyodorovich Grechishnikov (Deputy Chief Designer of VNIITF, Snezhinsk)** and detonated at 2500m altitude (**the long range American detectors, which were less accurate than close-in Russian instrumentation, suggested that this Russian test 52, codenamed "Joe 46" by America, had a yield of 1.2 megatons and a burst height of 3200m**). Litvinov gives details of the development of this bomb into

modern Russian nuclear weapons in his report to the 3rd Historical Conference on the History of the Nuclear Weapons Complex of Russia, Snezhinsk, June 16-19, 1998, ***Development of Nuclear Charges at the RFNC-VNIIFT (1963-1976)*** (first published on pages 135-145 of his book, ***Nuclear energy is not only for military application***, published by the Ural Branch of the Russian Academy of Sciences, Ekaterinburg, 2002, and **now available online on pages 536-547 of his *Selected Works,* published by VNIITF, Snezhinsk in 2014, linked here:http://elib.biblioatom.ru/text/litvinov_izbrannye-trudy_2014/go,0/**, whose page numbering we will quote from in the list of key Russian nuclear weapons design developments, *below*). Litvinov there explains that:

(1) between 1963-76 Russian nuclear charge designs were mastered for cheap factory mass production (serial production).

(2) the very high yield 1961-2 Russian nuclear tests of 20-50 megatons yield far exceeded the practical weight for missile warheads that could be delivered by affordable missiles, and when both Russian nuclear weapons labs (Sarov and Snezhinsk) tried to scale those designs down to give ~1 megaton from 300-500 kg mass, the results (quote from page 538 follows, ***emphasis added***): "in 1961-1962 were ***not crowned with success*** and this worried the military and the developers themselves. It turned out that it is easier to create powerful charges [20-50 megatons] than less powerful [~1 megaton] ones, that have a weight restriction [300-500kg mass]." Reports in recent years however indicate that **President Putin has brought back into production the 1961 designs for the tested 50 Mt (lead fusion capsule pusher) or untested 100 Mt (natural uranium fusion capsule pusher) version, to be used in his 32 Kanyon or "Ocean Multipurpose System Status-6" 24 m long, 2 m diameter, 100 ton nuclear underwater torpedo submarine drones, propelled by a nuclear reactor at up to 100 knots, with an operating depth up to 1000 m. This was announced by Putin on 1 March 2018 (below)**.



Russian Channel One TV showed an official Russian report on its 100 megaton drone torpedo, showing a warhead 6 metres long and 2 metres in diameter, similar to the 8 m 1961 Tsar Bomba design (2 m of it was a parachute)

(3) To make progress with compact ~1 Mt warheads for missiles, they improved the fission primary stage designs, testing plastic explosive for implosion for the first time in February 1964, and then "octogen" (known in the West as the explosive HMX) for the first time by Russia in the 280mm diameter calibre nuclear shell tested on **19 October 1966 (Russian nuclear test 256, yielding 55kt**), which "more than doubled" (page 545 quote) the yield of that device, due to the greater core compression achieved by using a better chemical explosive. *This is also of course of great importance to Russian thermonuclear weapons of higher yield, since more efficient primary stages release more x-rays and therefore enable greater fusion charge compression, giving a more efficient fusion burn*.

(4) They also improved the fusion charge design radically in 1965 by inserting tritium-deuterium gas into the hollow core of their fusion capsule (i.e. boosting the fusion capsule for the first time), which both improved the efficiency of their thermonuclear weapons, and also made possible cleaner devices (with greater

fusion capsule compression due to their improved primary stages, they could replace a fissile spark plug neutron source inside the LiD charge with neutrons from tritium + deuterium fusion, which then fission lithium in the surrounding solid LiD, producing more tritium), allowing the testing of the cleanest ever 140 kt Russian thermonuclear test at Semipalatinsk on 10 December 1972, which had fully *10 times lower fission product radioactivity* than the earlier **similar 140 kt total yield (of which about 6 kt was fission) relatively clean test of 15 January 1965 at Chagan River** (these data are from pages 541-542). In other words, they achieved well over 99% fusion yield (under 1% fission) in their 10 December 1972 test of 140 kt total yield (illustration of Russian >99% clean bomb design is shown below)!



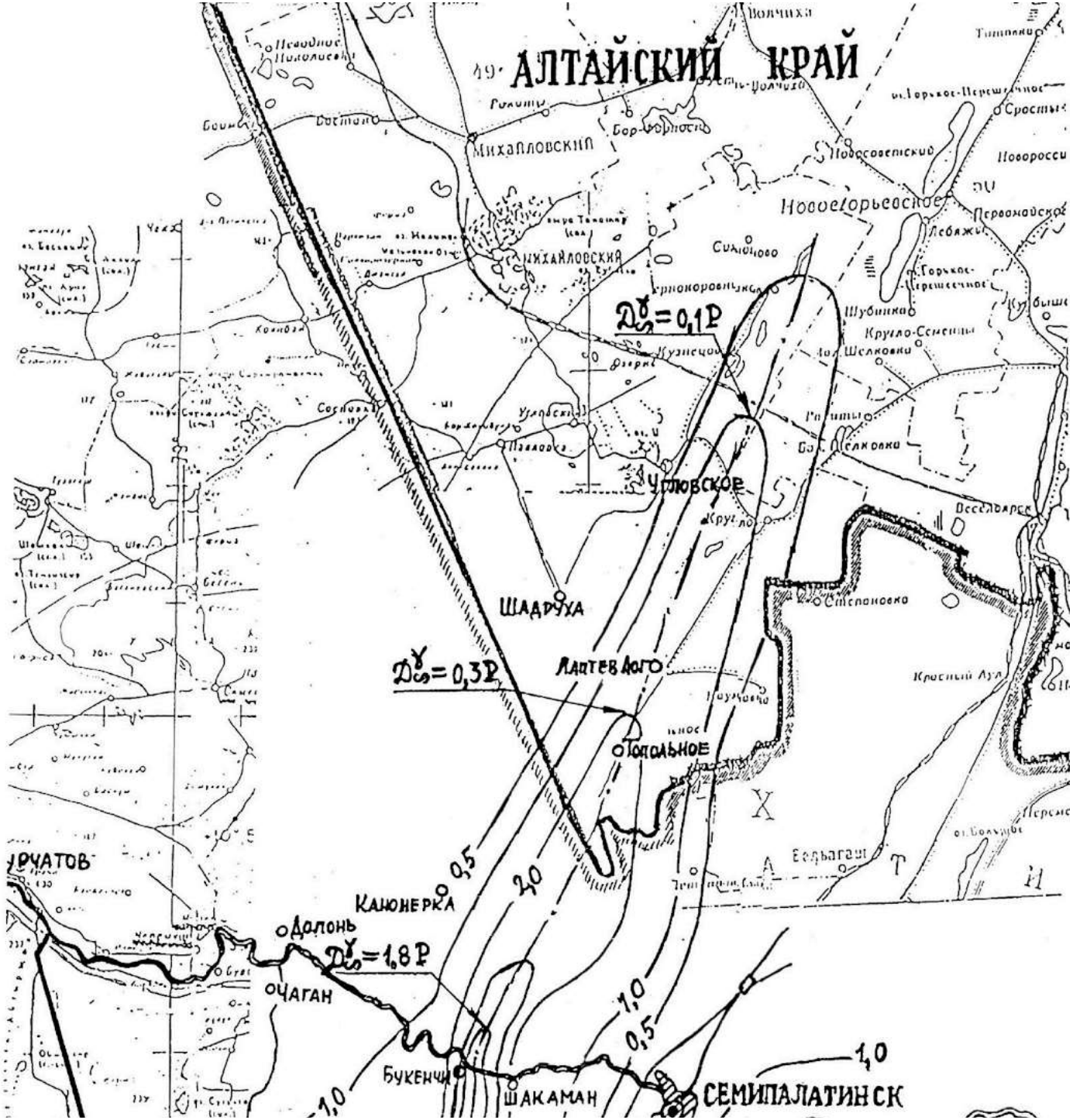


Russian 96% fusion (clean), 4% fission underground test, Chagan River, January 15, 1965. Yield: 140 kt, of which 6 kt was fission (3 kt in each of two primaries).





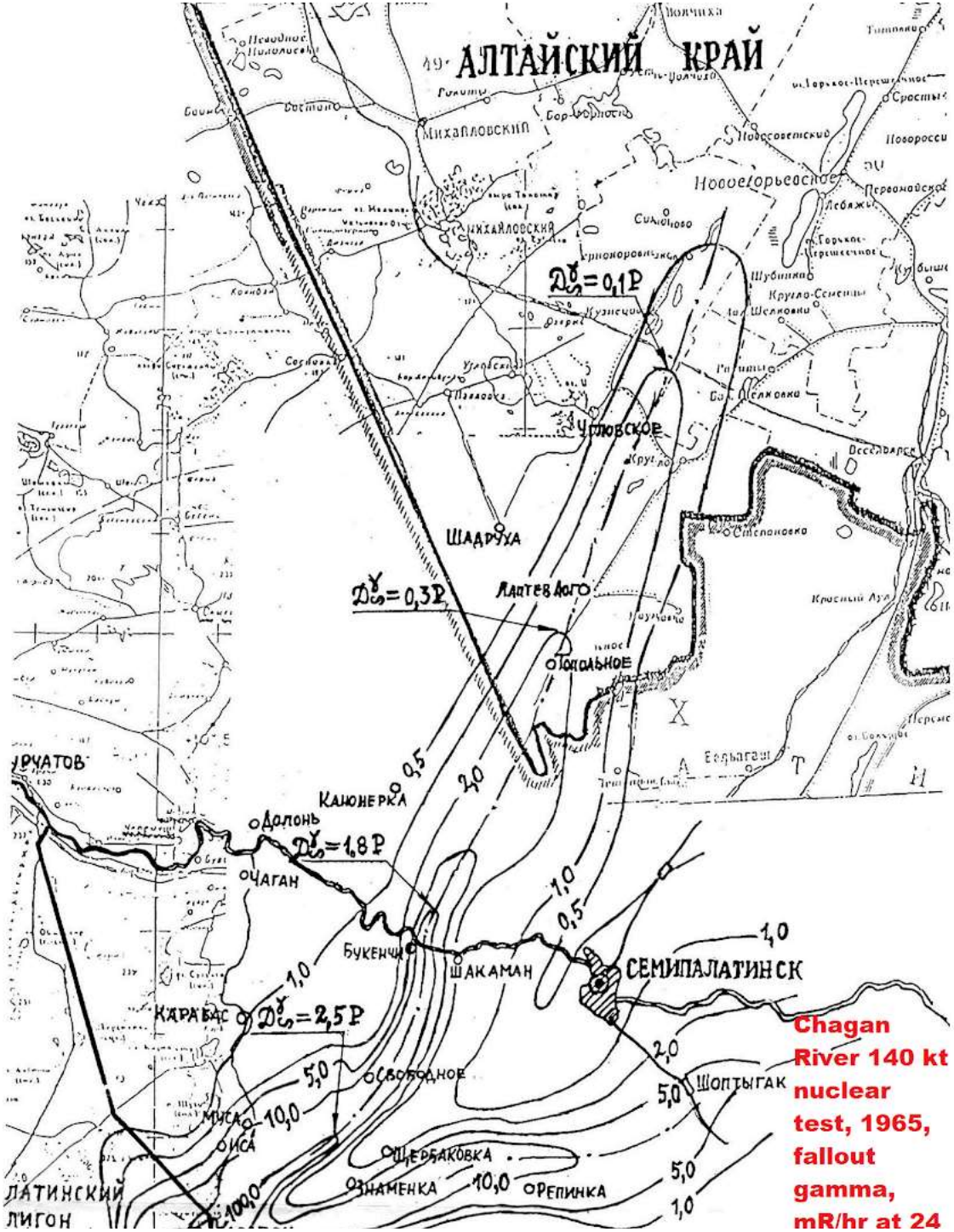



АЛТАЙСКИЙ КРАЙ
Михайловский
Новоегорьевское
Шадруха
Латев Лог
Тополь
Чарышское
Очаган
Букенчи
Шакаман
Семипалатинск
Каюнерка
Далонь
0,5
1,0
2,0



ABOVE: **the world's first nuclear explosion-created freshwater lake, Lake Chagan. It was produced on 15 January 1965 at the edge of the Semipalatinsk Test Site in Kazakhstan using a 140 kt (96% fusion, 4% fission) thermonuclear weapon, detonated 178 m underground in saturated siltstone (12% water), employing only 6 kt of fission in two primary stages of 3 kt each. About 80% of the radioactivity was trapped underground and only 20% escaped into the atmosphere. The crater is 408 m in diameter and 100 m deep. The dose rate on the crater lip at 30 years after detonation was reported as 2.6 mR/hr, i.e. about 260 times the Earth's average natural background radiation level of 0.010 mR/hr, with the lake water in the crater containing just 300 pCi/litre. On the 10 October 1965, they detonated a 1.1 kt nuclear bomb at 48 m depth in weak siltstone rock under the dry clay bed of the Sary-Uzen stream. The crater produced was initially 107 m in diameter and 31 m deep, but when flooded it slumped to 20 m depth and 124 m diameter. Some 96.5% of the fission products were trapped underground, and the crater lip had a dose rate of only about 2.5 R/hr at 5 days after detonation, decaying to 0.050 mR/hr (including natural background) at 30 years later. (Data source: Milo D. Nordyke, *The Soviet Program for Peaceful Uses of Nuclear Explosions*, Lawrence Livermore National Lab., UCRL-ID-124410, July 1996, pp. 13-15.)**

(5) In the later chapter, "Exploding Deuterium", Litvinov clarifies that although Russia failed to *directly initiate with PHYSICALLY SEPARATE fission stages* the fusion of pure deuterium in its nuclear weapon tests, Russia succeeded in pure deuterium fusion, provided that the deuterium charge was ignited by prior fusion from a *larger mass* of deuterium + tritium. See also the data from Russia linked **here**, **here**, and **here**. (America never succeeded in initiating a fusion burn in a *PHYSICALLY SEPARATE* deuterium charge either, despite many entirely false claims to the contrary, alleging that the 1952 Mike test used a fission bomb to compress and heat a completely physically separated charge of deuterium. **This is false because the Mike fusion charge was *not physically separate* from fissile and**

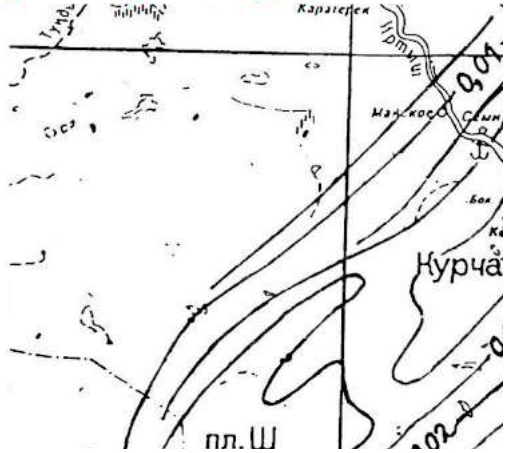


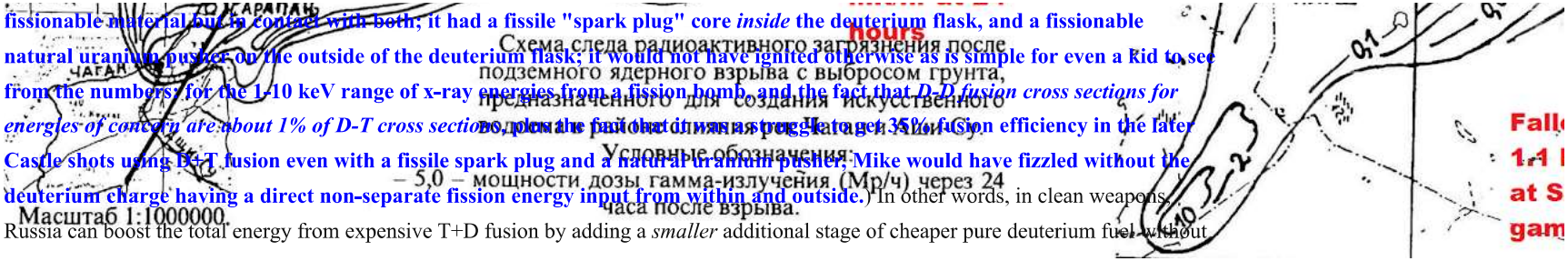
Chagan River 140 kt nuclear test, 1965, fallout gamma, mR/hr at 24



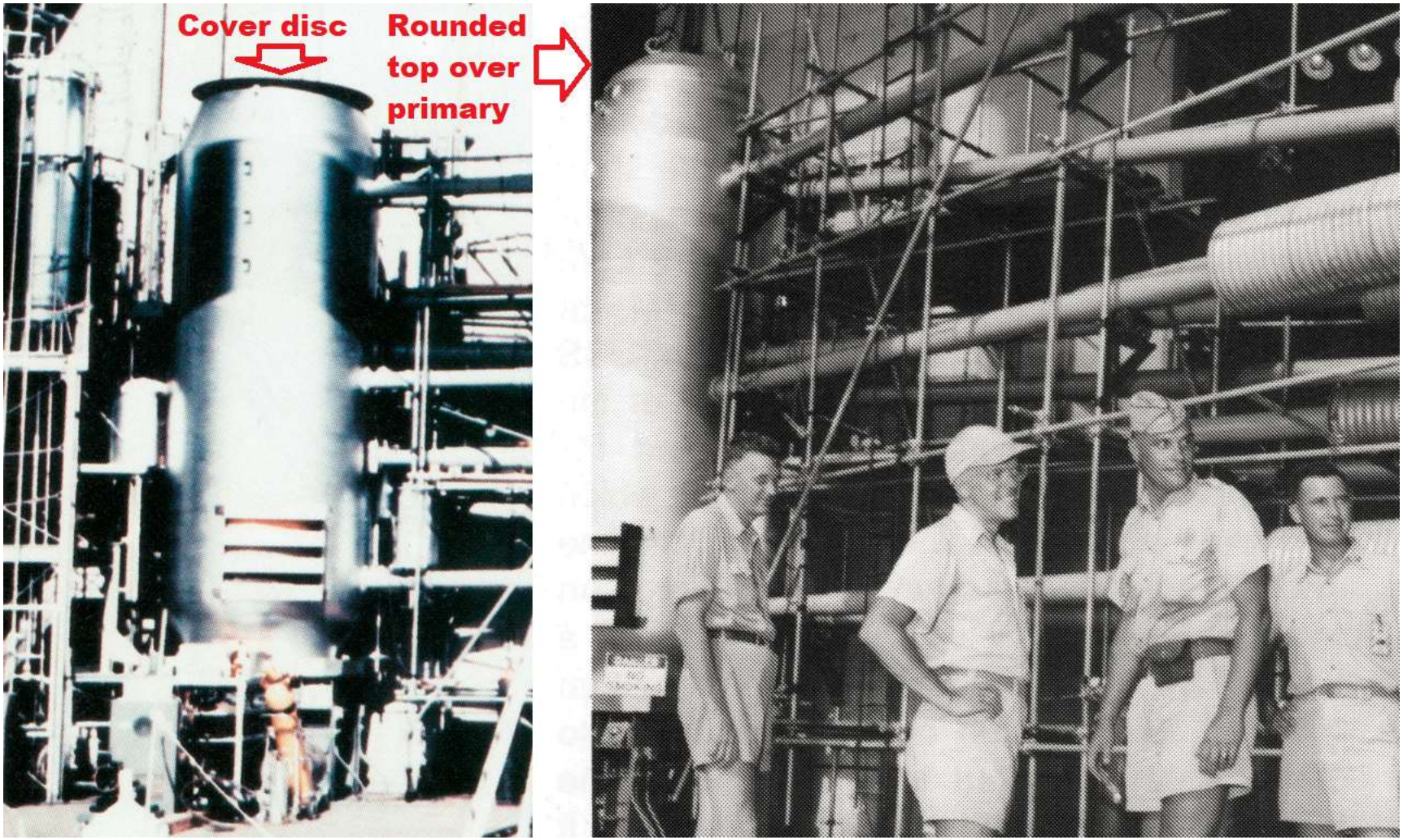
Схема искусственного водохран
компоновки его сооружени
1 – внутренний водоем; *2* – внешний во
канал; *4* – навал грунта; *5* – каменнонабр
водоспуск; *7* – паводковый траншейны
водосливом; *8* – остаток разрушенной дамб
грунта.

Chagan River reservoir map (creat nuclear test in 1965): (1) - internal reservoir, (3) water supply channel discharge dam, (6) bottom spillway (8) destroyed dam, (9) crater boun

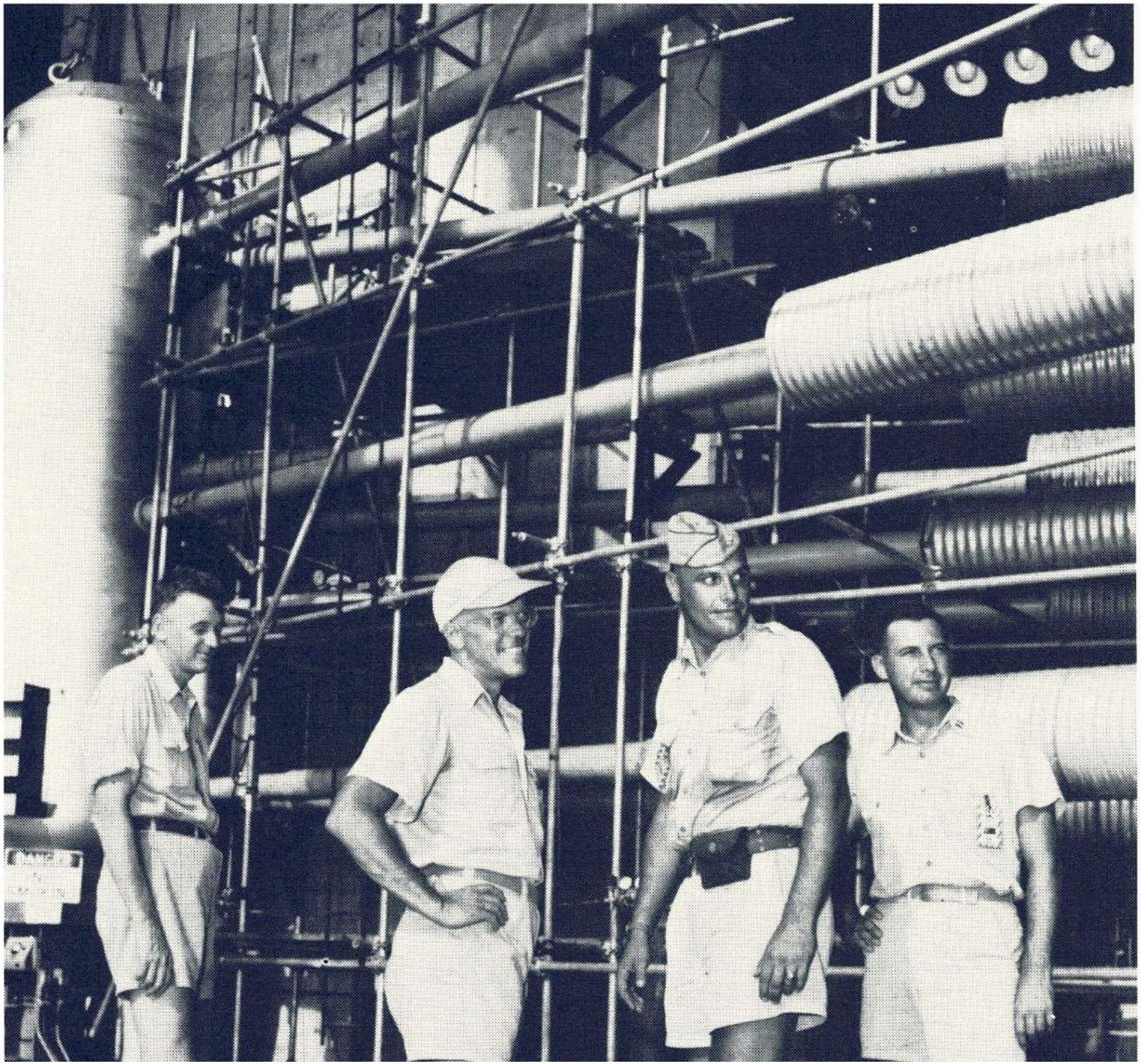




fissionable material but in contact with both; it had a fissile "spark plug" core *inside* the deuterium flask, and a fissionable natural uranium pusher on the outside of the deuterium flask; it would not have ignited otherwise as is simple for even a kid to see from the numbers: for the 1-10 keV range of x-ray energies from a fission bomb, and the fact that *D-D fusion cross sections for energies of concern are about 1% of D-T cross sections*, plus the fact that it was a struggle to get 35% fusion efficiency in the later Castle shots using D-T fusion even with a fissile spark plug and a natural uranium pusher, Mike would have fizzled without the deuterium charge having a direct non-separate fission energy input from within and outside.) In other words, in clean weapons, Russia can boost the total energy from expensive T+D fusion by adding a *smaller* additional stage of cheaper pure deuterium fuel without the spark-plug and uranium pusher America used in Mike; this smaller deuterium stage size compensates for the fact that pure deuterium requires a higher burn temperature. Naturally, once you have achieved a small very-high-temperature deuterium burn in a small mass (a very hard job and impossible to do directly with a fission bomb, as proved by the true nature of Mike as distinct from lying "simplifications" by those who want to trivilise the problems of warhead design to ban testing for improvements), you can then try to kindle into a bigger volume burn by multiplying up steadily via a large number of "Russian doll" stages (bombs within bombs), gradually increasing the power.



ABOVE: the 82 tons Mike top, in photos during assembly, is covered by a flat disc until Halloween 1952, when the Sausage's Dewar flask inside is filled with liquid deuterium, the fission primary is then inserted on to the top, and the flat cover disc is replaced by the founded top x-ray reflector over the primary. Photos are from Dr Frank H. Shelton, whose friend Dr Alvin C. Graves (who accompanied Shelton on his trip at Penney's invitation to the Australian-British nuclear tests at Maralinga, Operation Buffalo, in 1956) explaining how the primary, sparkplug (kindling), deuterium (fuel logs) and uranium pusher (hohlraum) in the Mike shot works on page 5-43 of his *Reflections of a Nuclear Weaponeer* (2nd edition, 1990): "First you need a match to start the fire; we use a fission bomb called the primary. Next, you wouldn't try to use the match to set one of the logs on fire, you would use some kindling [the central fissile spark plug]... That is Teller's 'New Super Bomb' invention ... Now you've got your logs burning ... You need a ... kind of furnace, the Germans call this a hohlraum, that propagates the fire ..." This is a very convoluted, pathetically expensive and low-efficiency dead-end in nuclear weapons design, one that



has created a Western impasse of "correct" dogma that Russia has broken down! Tragically, we don't just have a nuclear shelters "gap", or tactical neutron bombs "gap", we also have fundamental, massive "gap" in warhead design.



ABOVE: Ernest O. Lawrence with his colleagues from what is now called Lawrence Livermore National Laboratory, at Bikini Atoll in May 1956, preparing for their 3.53 megatons 85% clean (fusion) Livermore Redwing-Zuni test to make thermonuclear weapons fallout-safe as a deterrent (from Dr Frank H. Shelton's *Reflections of a Nuclear Weaponeer,* where Shelton called the most thoroughly fallout-documented test in history (as a result he testified that fallout was completely safe, *see the 10 May 1957 New York Times article below, although he was unfortunately prohibited from PROVING IT PUBLICALLY due to SECRECY nonsense* - Shelton being responsible for organising this). Livermore was outdone by Los Alamos, which fired Navajo, a 95% clean 4.5 megatons hydrogen bomb without the fissile spark plug that accounted for 10% of Zuni's 15% fission yield. Los Alamos used plastic foam to slow down the x-rays, giving enough time for primary stage neutrons to be channelled through the hollow centre of their lithium-6 deuteride Sausage, fissioning enough lithium into tritium prior to x-ray implosion. Zuni and Navajo were both rendered obsolete by Lawrence Livermore's John H. Nuckoll's 99.9% clean isentropically compressed pusherless nuclear tests at Christmas Island during Operation Dominic in 1962, the "Ripple" breakthrough (discussed in detail later in this blog post), and by Russian nuclear weapons development tests allegedly "peaceful" but in reality tactical neutron bombs, lasting a quarter of a century (from 1965 onward). On page 8-15, Dr Shelton points out that at the White House's 24 June 1957 Presidential Briefing propaganda event on "clean bomb", only the Livermore Radiation Laboratory designers of 85% clean Zuni were present (Ernest Lawrence, Mark Mills - drowned at Eniwetok in a helicopter crash during a rainstorm while preparing a clean bomb for testing the next year - and Edward Teller): "Conspicuous by their absence from the Presidential briefing were the Los Alamos weapon designers. After all, it was the "clean" [95% fusion] NAVAJO shot on Operation REDWING (1956), designed by LASL, that established the state-of-the-art in reduced fission weapon designs. 'We now believe that we know how to make virtually clean weapons, not only in the megaton range, but all the way down to small kiloton weapons,' Lawrence told the President." Shelton adds on



In May 1956, members of a University of California Regents committee accompanied E.O. Lawrence
Grounds to review the ZUNI hydrogen-fusion nuclear weapon test. Left to right are: University of Ca
James H. Corley; UCRL Physicist Harry Keller; Regents Gerald Hagar and Victor R. Hansen; UCRL Physic
and Gerald Johnson, in front of Brigadier General Alfred D. Starbird (person to Starbird's right is
Lawrence; UCRL Physicists Carl Haussmann and Charles Blue; UCRL Director Herbert York; Regent Earl L. E

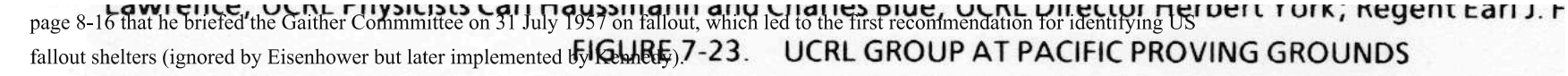


FIGURE 7-23. UCRL GROUP AT PACIFIC PROVING GROUNDS

page 8-16 that he briefed the Gaither Commmittee on 31 July 1957 on fallout, which led to the first recommendation for identifying US fallout shelters (ignored by Eisenhower but later implemented by Kennedy).

MAY 10 1957

SCIENTIST DOUBTS FALL-OUT DANGER

Atom Tests Can Be Safe for 40 Years at Present Rate, Pentagon Aide Testifies

NY TIMES

Special to The New York Times.

WASHINGTON, May 9— Atomic testing can be continued at the present rate for another forty to fifty years and not create any serious danger from radioactive fallout, the chief atomic weapons scientist in the Defense Department believes.

This opinion was offered recently by Dr. Frank H. Shelton, technical director of the Armed Forces Special Weapons Project. He gave it when testifying before a House Appropriations subcommittee on the possible dangers to human health caused by the fall-out from atomic explosions. The testimony was released today.

NEW YORK TIMES, 10 MAY 1957,

Dr. Shelton was called before the subcommittee to discuss what had been described as a "great deal of concern" being expressed over the long-range effect on the human race of the fall-out. The subcommittee's chairman, Representative George H. Mahon, Democrat of Texas, had noted such "concern."

At one point during the closed door hearing, Mr. Mahon asked:

"Could you not say that at the present rate we could go on for forty to fifty years without serious danger in so far as you know?"

"Yes," Dr. Shelton replied.

Information 'Meager'

At the same time, Dr. Shelton conceded that information on world-wide fall-out from past atomic tests was "extremely meager." The Defense Department, he said, is taking steps to define more precisely the amount of radioactive debris in the air from atomic tests and the rate at which it is falling to the earth.

Dr. Shelton testified that it would require large nuclear explosions with a yield equivalent to 30,000,000,000 tons of TNT to bring the average concentration of Strontium-90 in human bones up to the maximum permissible concentration. This would be equivalent to 1,500,000 atomic bombs of the size dropped on Japan in World War II.

Strontium-90 is a long-lived radioactive product of a nuclear explosion. In human bones it can produce cancer or leukemia. The maximum permissible concentration of Strontium-90 for general populations has been set at one-tenth of a microcurie for a person. A curie is a technical measurement of radiation, and a microcurie is one-millionth of a curie.

Dr. Shelton said that the maximum permissible concentration was five to ten times below the concentration necessary to produce a "barely detectable increase" in the rate of bone cancer or leukemia. His statement was based on the assumption, challenged by some scientists, that extremely small doses of Strontium-90 will not induce bone cancer.

Dr. Shelton likewise tended to minimize the threat of external radiation from fall-out materials. To increase the world-wide external radiation exposure by 10 per cent, he said,

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FIGURE 6-24 MARK-17 THERMONUCLEAR WEAPON AND F.H. SHEL

The gigantic advantage of deuterium fusion is that *you don't need to create a large number of neutrons ahead of fusion* to fission lithium in order to produce tritium. Lying simplified pictures of nuclear warheads with lithium deuteride secondary stages, often also showing a neutron shield to prevent neutrons from the primary stage from "pre-initiating" the secondary stage (regardless of whether the secondary stage contains fissile material or not) omit the entire problem that lithium deuteride must be irradiated with neutrons to produce tritium

Statement Before the Department of Defense Subcomm
Committee on Appropriations, House of Representat

by

REAR ADMIRAL EDWARD N. PARKER, USN
DEFENSE ATOMIC SUPPORT AGENCY
23 March 1960

Radioactive Fallout From Nuclear Explosions

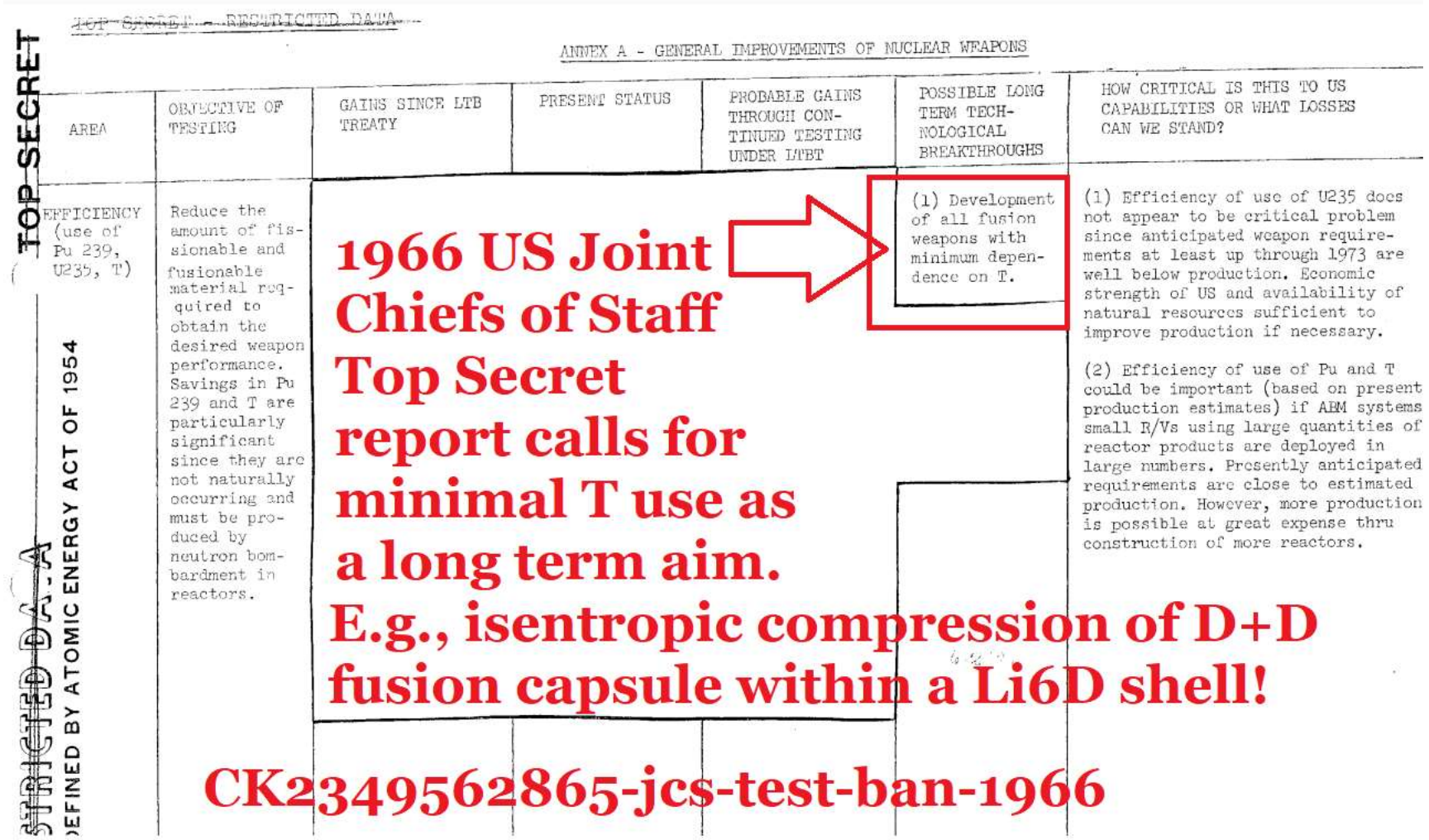
To a degree this controversy has existed because we were
with what appeared to be a new phenomenon. There has been wi
ignorance of the facts concerning radioactivity not only amor
also among the "experts." This is not surprising when one co
broad spectrum of disciplines which are involved in the topic
its effects. Nuclear physics, meteorology, soil science, pla
medicine, genetics, and political science all have important
on this subject and most studies have involved groups of peop
normal differences of opinion or of emphasis expected in any

prior to D+T fusion becoming possible (otherwise you have no tritium). The 85% clean 3.53 megaton Livermore Zuni test of Operation Redwing at Bikini Atoll in 1956 contained a fissile sparkplug which accounts for about 10% of the 15% fission yield (Zuni contained a lead pusher around the lithium deuteride instead of natural uranium), but the 95% clean 4.5 megaton Los Alamos Navajo test of that series

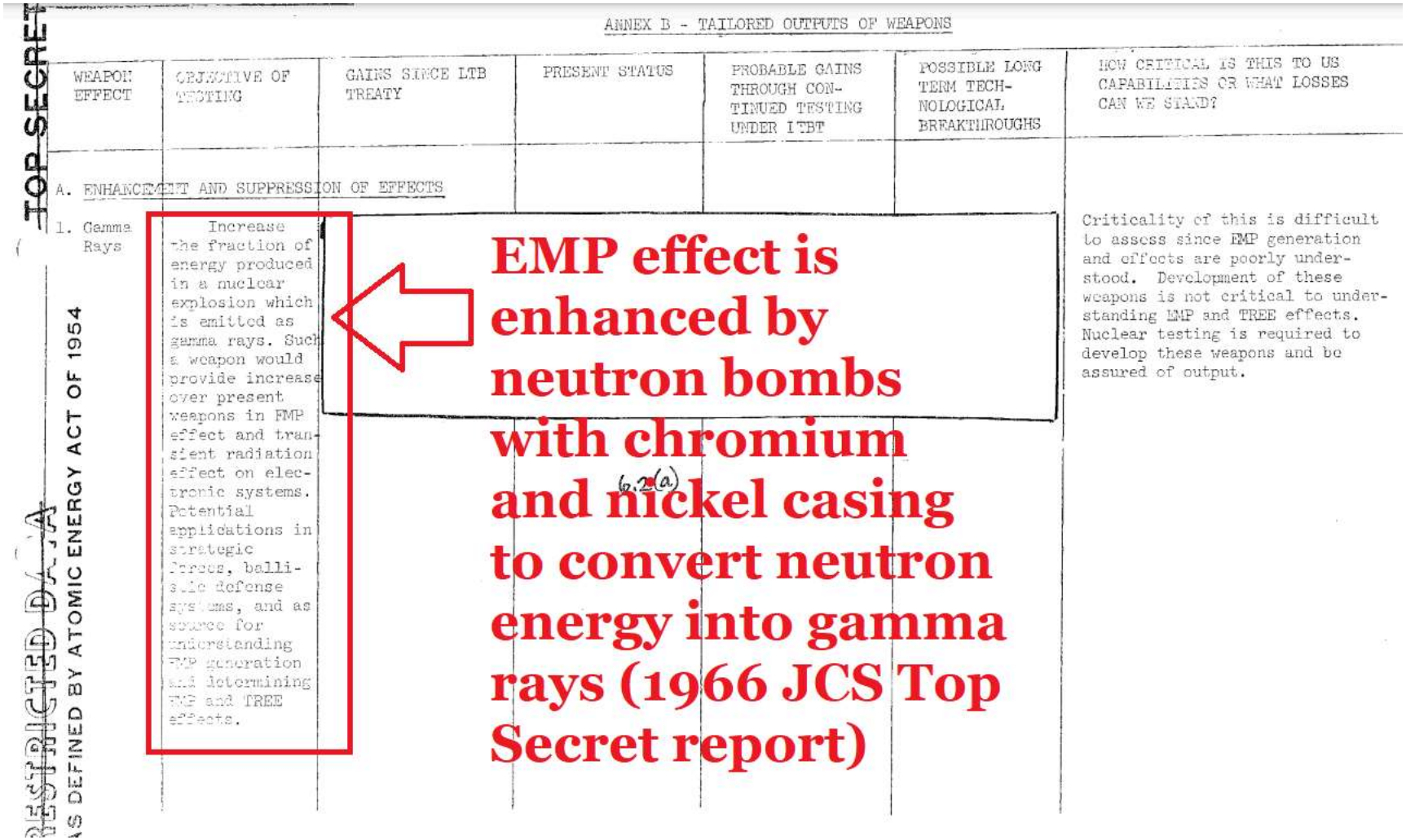
had an entirely clean second stage (no fissile spark plug). But Navajo had to eliminate the neutron interstage shield (unnecessary if you use non-fissile secondary stage) and to use a neutron channel to guide neutrons from the primary stage into the hollow cylindrical lithium deuteride secondary stage, to enable some of the lithium to be fissioned to produce tritium, *BEFORE* the secondary stage was compressed by x-ray ablation of the lead pusher on the outside of that secondary cylinder. So Navajo needed to have a significant primary yield to release those neutrons, and the design would fail if its primary stage size was reduced to try to reduce fission yield to below 5%. So to make further progress on cleaner weapons, you need either immense, isentropic compressions of the secondary stage that allow neutrons from a non-fissile D+T spark plug within lithium-6 deuteride (or natural lithium deuteride, in the best designs) to work, which has the problem of the radioactive decay of the tritium, or you must consider overcoming the hurdle of D+D fusion to achieve a long-shelf life clean nuclear warhead that doesn't require top ups to compensate for the 12.3 years half life of tritium. The key issue with D+D fusion is that, having a cross section 100 times less than D+T fusion, you need to use isentropic not shock compression to concentrate a lot more x-ray energy into compressing it to extremely high density to get really efficient fusion. But having done so, you then have the advantage of a very clean, very cheap, very long-shelf-life bomb:

"The Mike device contained several dozen litres of liquid deuterium; however, fusion efficiency was probably not much greater than 15%, and 8 megatons (nearly 80%) of Mike's total yield came from fission of plutonium and uranium-235 [in the sparkplug radially central inside the cylindrical Dewar or Sausage of liquid deuterium] ... (If the Sausage contained 1000 litres of liquid D, then "burn" efficiency was around 6%.)" - Chuck Hansen, Footnote 93 in *Swords of Armageddon*, version 2.0, volume 3, pages III-38 and III-39. (This contains calculational errors.)

Boris Litvinov's "Exploding Deuterium" chapter also examines the use of uranium-233 in nuclear weapons, which is made in reactors by irradiating thorium-232 with neutrons. There is an important storage problem, since Litvinov states that this uranium-233 is contaminated by 0.1% uranium-232, which has an alpha decay chain which includes thallium-208, which releases high energy 2.6 and 0.6 MeV gamma rays, so that a year after production, a mass of 1 kg of U233 or 1 g of U232 gives a gamma dose rate of 10 R/hour at 50 centimetres distance. This makes U233 weapons very difficult to service safely! *However, Russia used U233 in place of plutonium in its RDS-37 aka "Joe-19", the Russian's celebrated 1.6 megatons, 22 November 1955 two-stage thermonuclear weapon, according to Dr Frank H. Shelton's Reflections of a Nuclear Weaponeer, page 7-27, which cites reference 24 on page 7-68, which is the Top Secret classified 20 February 1956 U.S. Joint Chiefs of Staff, "Intelligence Information for Joint Intelligence Committee", which says that the RDS-37 fallout contained evidence of U233, U235, U238 and LiD, but no plutonium!* I'm just quoting here, and am curious as to how they could rule out the presence of plutonium when of course neutron capture in the U238, which definitely was present, yields U239 which quickly decays into Np239 and then into Pu239 within days! You also get smaller quantities of higher mass isotopes of plutonium, from multiple neutron captures in U238. Maybe they had big samples of fallout and excellent radiochemistry, and deduced that *all* the plutonium present in the fallout was the result of neutron captures in U238, and none had been present initially in the bomb before firing. If so, hats off to them!



ABOVE: the 1966 Top Secret US Joint Chiefs of Staff report, *Study of National Security Factors in a Comprehensive Test Ban Treaty,* Appendix C, "Criticality of Nuclear Testing to US Nuclear Weapons Technology", Annexes A and B called for vital long-term improvements to US nuclear weapons designs, including reduction of U235 (oralloy) and T (tritium) dependence, e.g. with efficient isentropic compression of pressurised D capsules replacing T+D, and also enhanced prompt gamma ray weapons for maximising EMP strength (this is done by putting a nickel-chromium shell around the fusion capsule in a neutron bomb, to convert a fraction of the neutron energy into high energy gamma rays). These lengthy annexes also called for reduced warhead costs, increased warhead shelf-life, directed X-ray output (i.e. simply putting the bomb into a metal tube, open at one end, before the development of nuclear pumped x-ray laser Excalibur by Livermore a decade later), enhanced ground shock warheads (e.g. hardened earth penetrator warheads), and reduced fission yield at low total yield to allow cleaner tactical warheads.



TOP SECRET

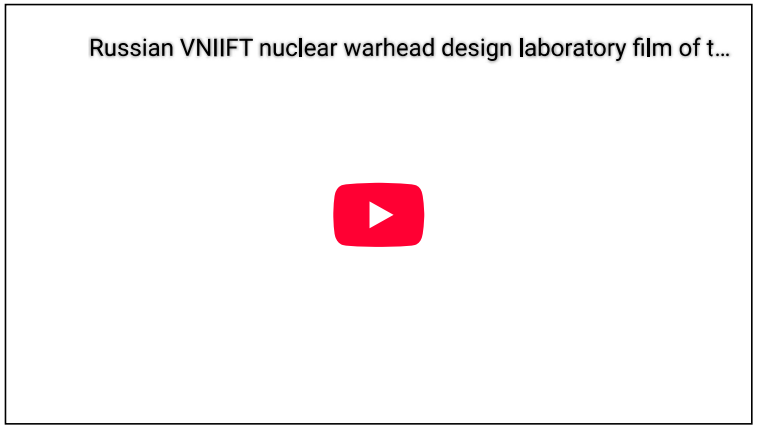
RESTRICTED DATA

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

ANNEX B - TAILORED OUTPUTS OF WEAPONS

WEAPON EFFECT	OBJECTIVE OF TESTING	GAINS SINCE LTB TREATY	PRESENT STATUS	PROBABLE GAINS THROUGH CONTINUED TESTING UNDER ITBT	POSSIBLE LONG TERM TECHNOLOGICAL BREAKTHROUGHS	HOW CRITICAL IS THIS TO US CAPABILITIES OR WHAT LOSSES CAN WE STAND?
A. ENHANCEMENT AND SUPPRESSION OF EFFECTS						
1. Gamma Rays	Increase the fraction of energy produced in a nuclear explosion which is emitted as gamma rays. Such a weapon would provide increase over present weapons in EMP effect and transient radiation effect on electronic systems. Potential applications in strategic forces, ballistic defense systems, and as source for understanding EMP generation and determining EMP and TREE effects.					Criticality of this is difficult to assess since EMP generation and effects are poorly understood. Development of these weapons is not critical to understanding EMP and TREE effects. Nuclear testing is required to develop these weapons and be assured of output.

EMP effect is enhanced by neutron bombs with chromium and nickel casing (b.2(a)) to convert neutron energy into gamma rays (1966 JCS Top Secret report)



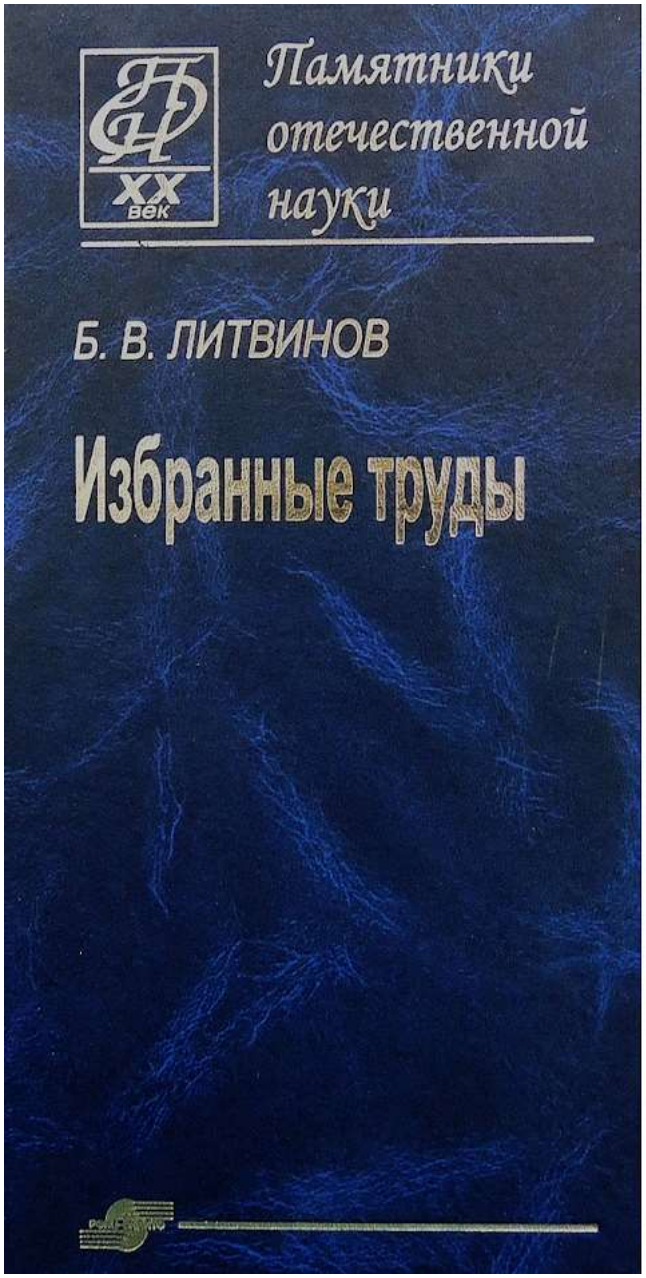
(6) A 2005 film (embedded above, and **linked on YouTube here**) by the Snezhinsk nuclear weapons lab about their nuclear weapon "products" (extensive stills from this film are reproduced below, showing the range of nuclear missile, bomb and cannon shell warheads they developed) adds further information on how Russia managed to reduce the weight of its MIRV nuclear warheads. Translating from the Russian voice narrative commentary of the film: "*a Russian patent was obtained for the design of the [thermonuclear weapon casing or] container by the specialists of the two institutes under the leadership of Petrov. In close cooperation with the Institute of Superplasticity of Metals, the city of Ufa, a new technology was developed for manufacturing multi-profile parts from hard-to-form alloys based on nickel-titanium and aluminum using the effect of superplasticity. ... the new technology makes it possible to reduce the weight and increase the strength of parts, and for their manufacture to use hard-to-deform superalloys. ... Product 244 was the first mass-produced atomic small-sized bomb for equipping front-line aircraft weighing 55 times less than the mass of the product 202. Product 245 was the first mass-produced thermonuclear bomb for equipping strategic aviation weighing five times less than the mass of the product 202. When creating products 244 and 245, conceptual provisions were developed for the development of single bombs for a wide range of carrier aircraft ... more than 20 samples of aerial bombs of various calibers were developed and designations for creating a family of them were awarded the State Prize of the USSR. Product 6 was a nuclear warhead of an anti-aircraft guided missile ... Product 30: this is the first development by the Institute of Nuclear Ammunition to equip the ground-based missile system UR-100 ... Product 269 is a nuclear warhead of an operational tactical single-stage missile ...*

"The presented nuclear munitions of the missile systems of the navy allow us to trace the origin and development of the least vulnerable naval component of the country's strategic nuclear forces of the product 255a 13 nuclear munition of the R12 missile with a detachable warhead of the D2S complex. ... Product 3 combat equipment of the R21 missile with a detachable warhead of the complex 24, the first domestic complex with the launch of a missile from a submerged position. ... Product 15 combat equipment rocket R27 medium range ... Product 42 combat equipment of the R27 missile to the complex was intended to destroy aircraft carriers and electronic missile defense systems of a potential enemy. Product 46 ensuring the stability of ammunition, the operation of electronic countermeasures and air shock in the conditions of Western firing, the creation of ammunition 46, ensuring the effective use of the T9 complex. Products 82 and 83 combat equipment, the R-27 missile, the first missiles of the naval fleets that could be equipped with both monoblock main part of the v82 nuclear weapon and those sharing the main part with three nuclear weapons of type product 83. ... The ammunition 82 automation system was improved compared to the automation of ammunition 15 and 46. ... Products 94 and 95 were developed for the value of the first

complex of the methodological purpose of the navy of the 3rd generation; this can be equipped with a single-block nuclear warhead 94 or divided main and part of the firing of warheads nuclear ammunition 95 individual targeting at specified trailer points. ..." (For clear photographic definitions of the various "Product" numbers assigned to Russian nuclear warheads, see the stills from their film summarising their warheads, below.)



Celebrated Russian nuclear bomb designer Boris Vasilyevich Litvinov



РОССИЙСКАЯ АКАДЕМИЯ НАУК

Российский федеральный ядерный центр –
ВНИИ технической физики имени академика Е. И. Забабахина

Б. В. ЛИТВИНОВ

ИЗБРАННЫЕ ТРУДЫ

Издательство РФЯЦ–ВНИИТФ
Снежинск 2014

RUSSIAN ACA

Russian Fede
Academician E. I. Zababal

B. V. L

SELECTE

Publishing Ho
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BELOW: a declassified data summary of a wide range of Russian nuclear weapons, their designers, and the use of the weapons by various delivery systems from the VNIIFT nuclear warhead design laboratory, which designed 100% of the currently stockpiled Russian strategic freefall nuclear bombs, and also 100% of currently stockpiled Russian tactical nuclear warheads (both freefall aircraft delivery bombs and

RUSSIAN ACADEMY OF SCIENCES

Russian Federal Nuclear Center

Academician E. I. Zababakhin Institute of Technical Physics

B. V. LITVINOV

SELECTED WORKS

Publishing House RFYATS VNIITF

Snezhinsk 2014

Pages 536-547:

DEVELOPMENT OF NUCLEAR CHARGES AT THE RFNC - VNIITF (1963-1976)

B. V. Litvinov

Development of nuclear charges at the RFNC - VNIITF (1963-19765) 537

The second, but no less important reason for classifying 1963 as a turning point in the charge industry is the transition, starting this year, to the physical schemes and designs of nuclear charges, which became the basis for the subsequent creation of that generation of nuclear charges, which now forms the basis of Russia's nuclear weapons. The year of the end of this period can be

538 B. V. Litvinov

to name the same 1976, since by that year most of the developed nuclear charges had been mastered by serial production ... **[mass production]**

of 50 and 100 Mt TE have no future. The work plans of our institute for 1963 included the creation of a nuclear charge with an energy release of 100 Mt TE, since the KB-11 charge tested on October 31, 1961 at that power could not be placed in any carrier, except for a specially modified TU-95 . We assumed to make our own version of the charge with the same energy release according to the scheme proposed at our institute by L. P. Feoktistov, M. P. Shumaev, E. N. Avrorin and B. M. Murashkin and successfully tested by our institute (NII-1011) in air tests in 1962 in charges of lower energy release. In rocket design bureaus , and above all in the Design Bureau headed by Academician V. N. Chelomey, a heavy rocket capable of lifting over 20 tons of payload was developed specifically for our charge. All this did not seem to portend the withering of the military's interest in powerful and super-powerful nuclear charges and missile delivery systems , but more and more information was received that the Americans had chosen a different path; namely, the creation of nuclear charges with an energy release of up to 1 Mt and a mass of 300 to 500 kg, which it required for their delivery to the targets much less powerful missiles than those that were created by us. The work and, accordingly, the aerial nuclear tests of KB-11 and NII-1011 in this direction in 1961-1962 were not crowned with success, and this worried the military- and the developers themselves. It turned out that it is easier to create powerful charges than less powerful ones, but having a mass restriction at the same time. It began

542

to develop at the Research Institute- nuclear charge with low fragmer such a nuclear charge to power operating only on gaseous deut device for physical experiments

The development of ideas in the conduct during 1965-19 various designs of nuclear explo for industrial, not military use. N but the negative results were a us to establish the area of exis explosive devices. Let us list so obtained in the RFNC-VNIITF i experience and the SINE.

First, the creation, together v explosive device for nuclear exp testing of such a device in Dec than 100 kt TE, its fragmentation which was 10 times less than explosion to form a reservoir or 1965. Such was the progress excavation in 8 years. Unfortun Peaceful Explosions (1974), nu prohibited.

Secondly, the creation of sp for physical experiments, in whi explosion on materials and obje

Thirdly, the creation at VNII device with low fragmentation a ores and other minerals. In pa September 1972, the crushing deposit in Khibiny. The apatite e and immediately after extraction

The development of nuclear the line of creating industrial e 1965-1968, a nuclear explosive de gas flows from the lower horizo

artillery fired projectiles of various kinds). This film concludes with the message: "Postscript: In the real conditions of Russia's current position in the world community, and the state of the Russian army, Russia's nuclear weapons remain a reliable guarantor of strategic stability in the world, independence, integrity of the country's military and economic security. - From the (VNIIFT nuclear weapons lab) authors."


КБ-2
ВНИИТФ
разработано
~ 90
ядерных боеприпасов
разных типов и назначений
(KB-2 VNIITF DEVELOPED 90
NUCLEAR WEAPONS FOR ALL
PURPOSES)
(100% OF ALL STRATEGI
OF ALL TACTICAL BOMBS
ВМФ
ЯБП РК СН
авиабомбы страте
ВВС
авиабомбы страте
авиабомбы Ф
СВ
ядерные артиллерийски
РВСН
ЯБП РВСН


VNIITF RUSSIAN NUCLEAR WEAPONS SUMMARY FILM
Рабочая группа 80
К2Б
ВНИИ
(English: Working group 80)
Фильм посвя
(English: This film is d
50-ти летию РФЯЦ ВН
60-ти летию ПОБЕДЫ
(... To the 60th Anniversar


Лауреаты PRIZES
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Государственной Премии СССР - 53 USSR
Государственной Премии РФ - 6 Russian Fed.
Государственной Премии им. Г.К.Жукова - 1 State
Премии Правительства РФ - 7 Government
Почетные звания РФ Honorary
Заслуженный деятель науки РФ - 1 titles
Заслуженный конструктор РФ - 4 (Russian Federation)
Награждения AWARDS
Ордена и медали СССР и РФ - около 1400 1400
Ядерные
NUCLEAR
боеприпасы
ВВС и
AIR FORCE AND
MARINE AVIATION

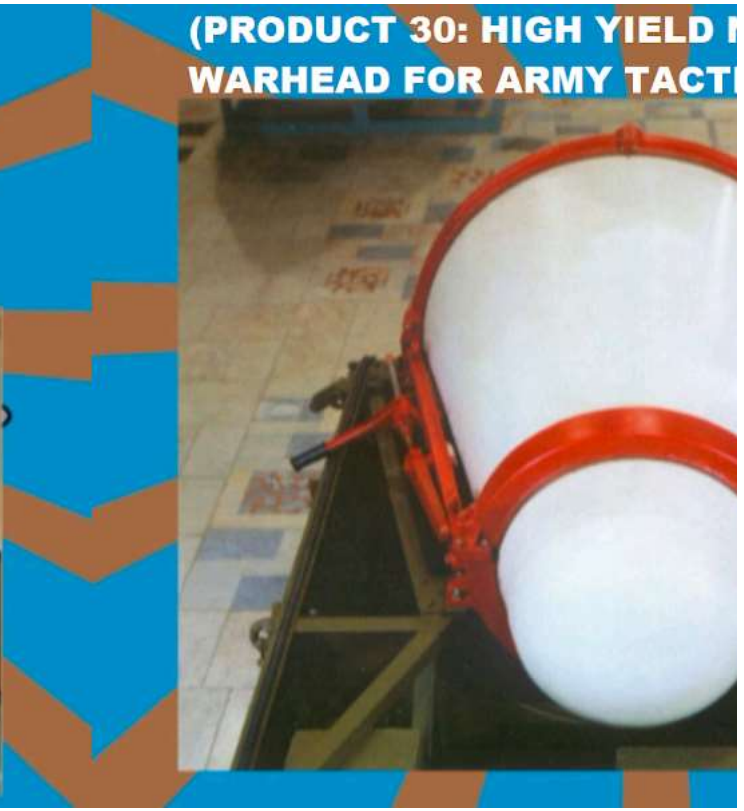

Ядерные
боеприпасы
сухопутных
войск
(NUCLEAR AMMUNITION OVERLAND TROOPS)
(PRODUCT
изделие


(152.4 mm diameter
nuclear artillery shell)
изделие 152
(PRODUCT 152)


Научный руководите
института
Е.И. Забабахин
Главный конструктор
института по первому
конструкторскому
направлению
Б.В. Литвинов

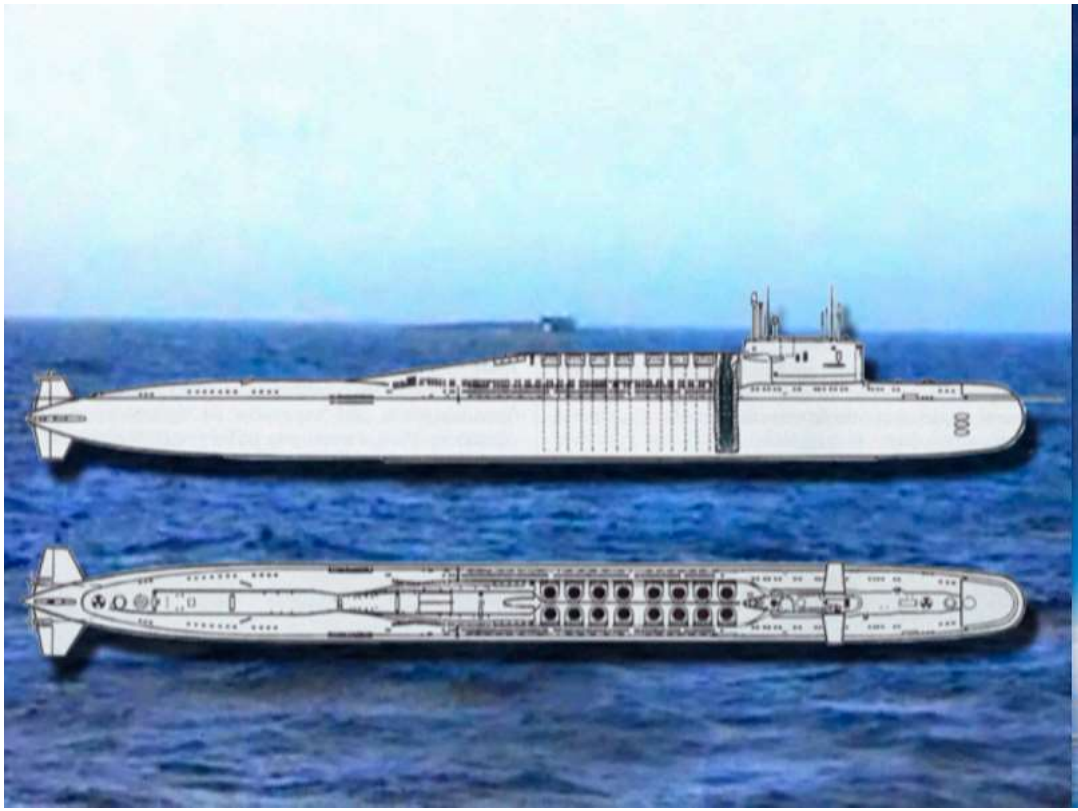

(PRODUCT 6: NUCLEAR WARHEAD FOR SURFACE-TO-AIR DEFENCE MISSILES)
изделие 6

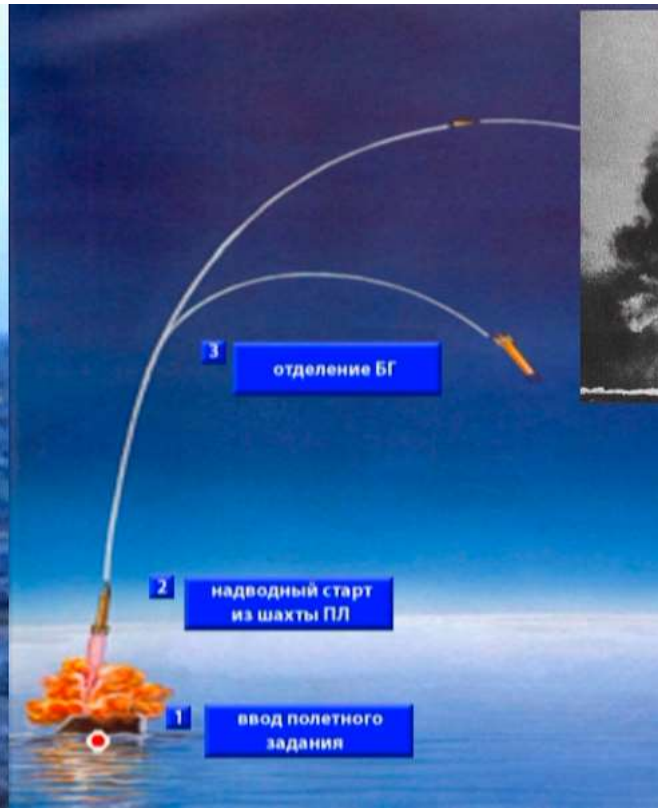

(PRODUCT 245: LARGE, HIGH YIELD
THERMONUCLEAR FREEFALL BOMB)
изделие 245

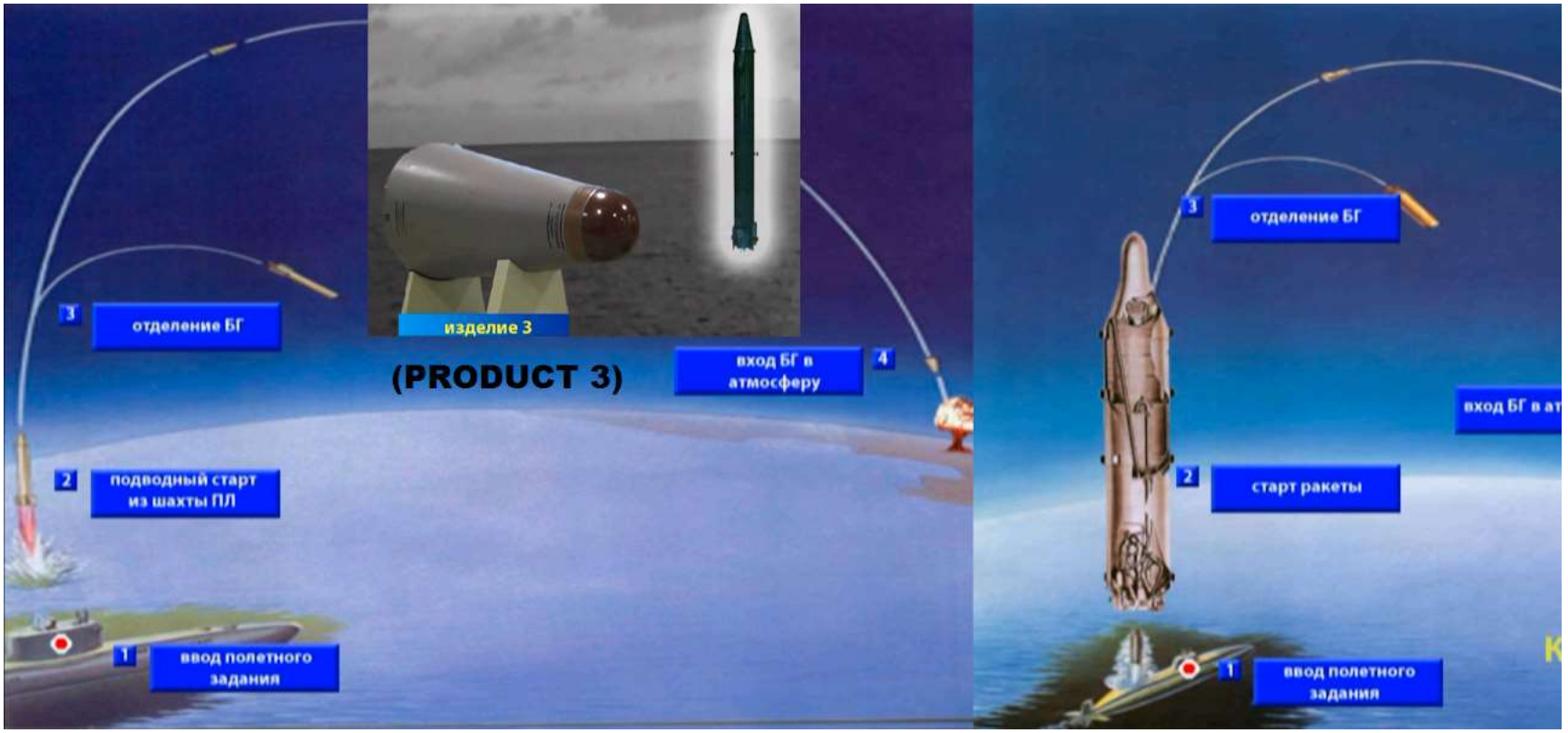

(PRODUCT 30: HIGH YIELD
WARHEAD FOR ARMY TACT


(STRATEGIC NUCLEAR MISSILES OF THE NAVY)
Ядерное
боевое оснащение
ракетных комплексов
стратегического назначения
ВМФ

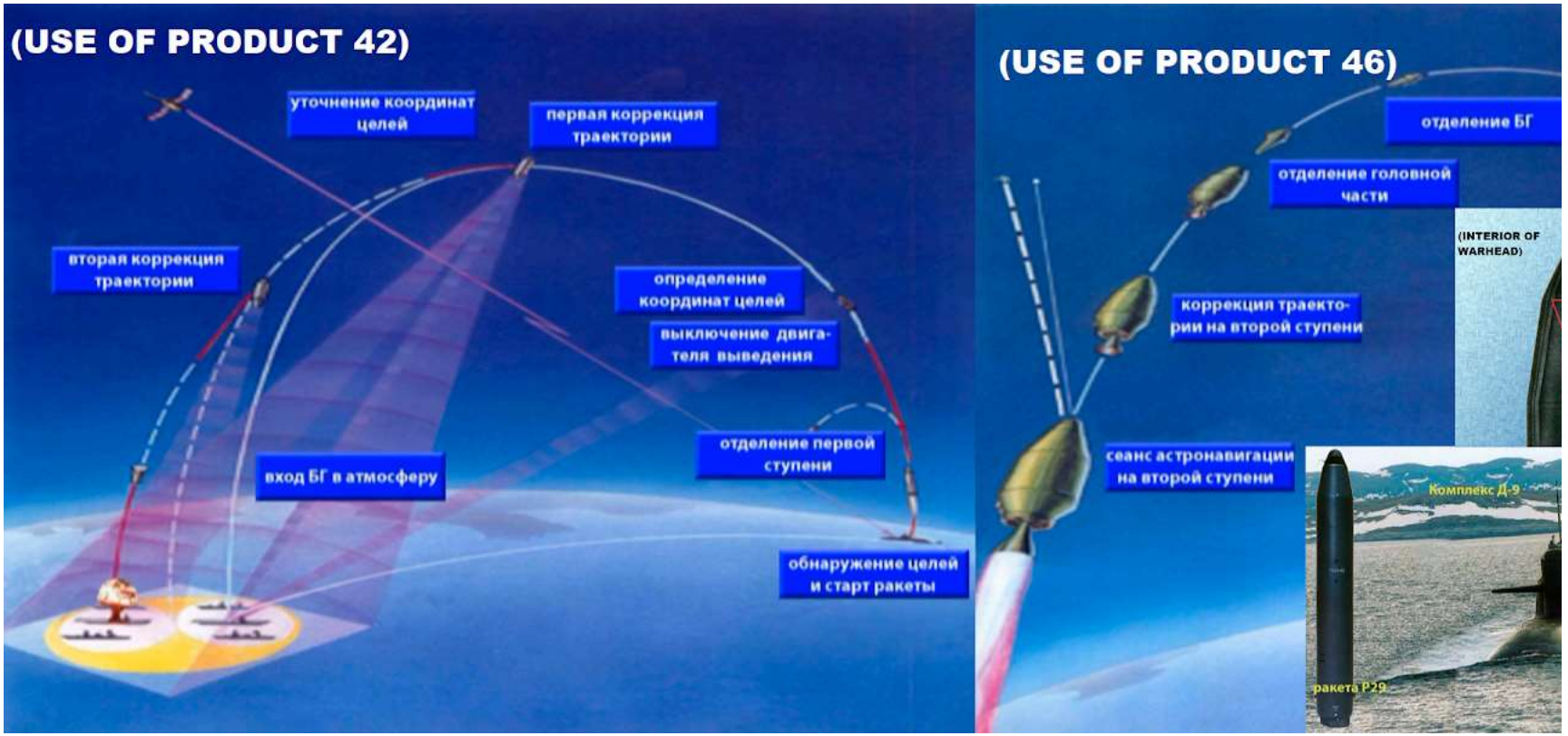

изделие 255




3
отделение БГ
2
надводный старт
из шахты ПЛ
1
ввод полетного
задания


3
отделение БГ
изделие 3
(PRODUCT 3)
4
вход БГ в атмосферу
2
подводный старт из шахты ПЛ
1
ввод полетного задания
3
отделение БГ
2
старт ракеты
1
ввод полетного задания

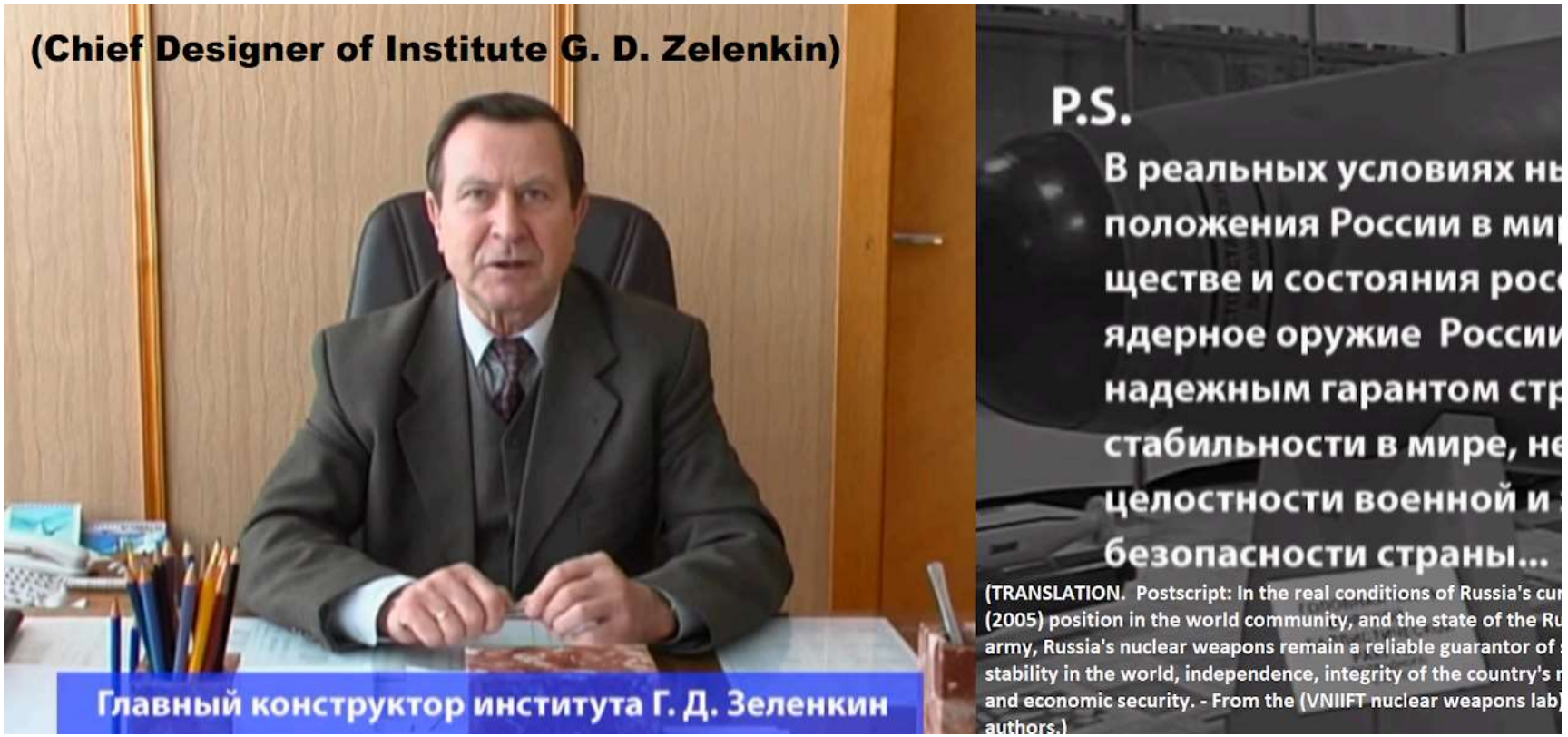

(PRODUCT 42)
изделие 42
Комплекс Д-5


(USE OF PRODUCT 42)
уточнение координат целей
первая коррекция траектории
вторая коррекция траектории
определение координат целей
выключение двига-теля выведения
отделение первой ступени
вход БГ в атмосферу
обнаружение целей и старт ракеты
(USE OF PRODUCT 46)
отделение БГ
отделение головной части
(INTERIOR OF WARHEAD)
коррекция траекто-рии на второй ступени
сеанс астронавигации на второй ступени
Комплекс Д-9
ракета Р29

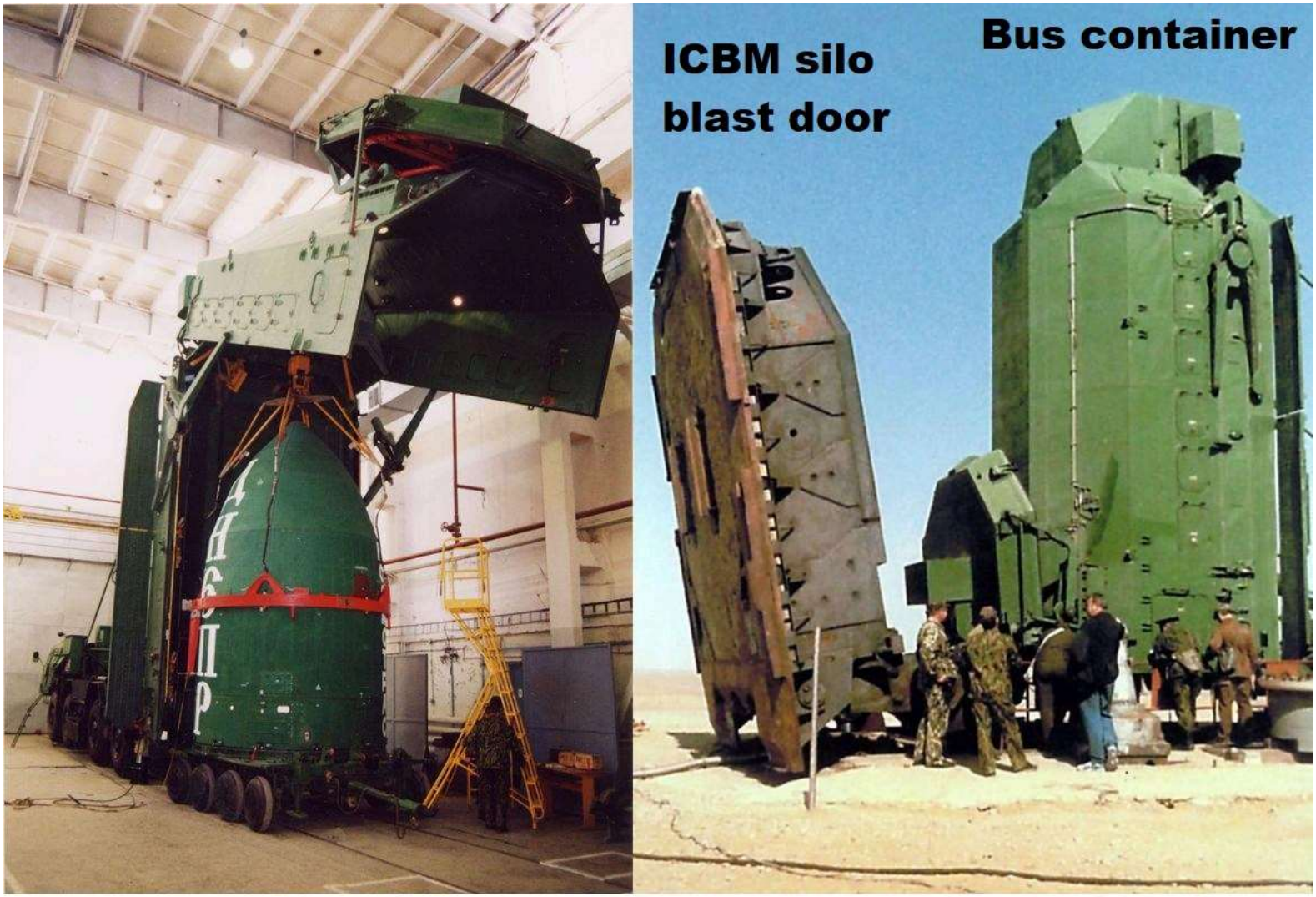

PRODUCT 83 (MIRVs)
(3rd GENERATION: MIRV THERMONUCLEAR WARHEADS)
изделие 82
изделие 83
комплекс Д-5У
PRODUCT 82 SINGLE WARHEAD


(USE OF PRODUCT 82)
3 отделение БГ
Трехракетный залп комплекса Д-5У
вход БГ в атмосферу 4
задействование источника тока 5
Зона противолодочной обороны
2 старт ракеты
1 определение и ввод полетного задания
Спустя 30 минут после старта ракет...


DESIGNERS OF PRODUCT 95
Научный руководитель и главный конструктор института К.И. Щелкин
Заместитель научного руководителя и главного конструктора института В.Ф. Гречишников
USE OF PRODUCT 95
4
5
прицельное разделение БГ
4
4
ввод полетного задания
3
отделение второй ступени
2
сеанс астронавига-ции
1
отделение первой ступени



The film stills above taken from the 2005 film dedicated to the 60th Anniversary of the USSR's Victory in WWII, made by the VNIITF Russian nuclear weapons design laboratory at Snezhinsk, and it summarises the warheads, their purposes, delivery systems, uses, designers, philosophy, and so on. Note that one of the weapons designers shown to be responsible for the 1970s MIRV narrow-diameter Snezhinsk nuclear warheads (Product 83 with a mass of 170 kg was tested on 2 November 1972 yielding 165 kt, and Product 95 with a mass of 210 kg was tested on 23 July 1973 yielding 212 kt) is **Vladimir Fyodorovich Grechishnikov (1917-58)**, who died in 1958; the point is that the dual-linear implosion primary design of thermonuclear weapon (simply a pipe with two melon-shaped linear implosion fission bombs in it, separated by a capsule of fusion fuel) was developed by 1958, earning Grechishnikov a Lenin Prize. Grechishnikov, a design engineer, had earlier appropriately worked on other straightforward and low-cost solutions for Russia, namely designing the cheap, easily manifactured, but efficient tank and aircraft engines during WWII that helped Russia win decisive battles by numerical superiority. The hard fact that the laboratory credits him with the MIRV warhead designs of the 1970s, despite his death in 1958, proves that the dual primary design first tested in 1958 was used in those 1970s MIRV warheads. Grechishnikov's background in Russian tank designs of WWII is not an aberration of Russian nuclear weapon design, witness that in **"Designer N L Dukhov and his School" published in 2004 by JSC South Ural Publishing House, Chelyabinsk**, Dukhov is another similar, WWII Russian tank designer who ended up a nuclear weaponeer, **deputy chief designer of KB-11 (aka Arzamas-16, or Sarov) developing over 10 years the neutron initiators for the first generation of Sarov's deployed nuclear weapons across 17 delivery systems including the R-7 missile and the T-5 nuclear torpedo!**



Transportation of warhead bus to a Russian ICBM silo

The weapons designer with the big eyebrows in the film, shown both as a designer of the world's smallest diameter nuclear artillery shell and with President Putin on the latter's visit to the lab by helicopter in 2000, is the late **Boris Vasilievich Litvinov (1929-2010), a prolific author of scientific papers** and also books hankering after the restoration of Russia as a great power. Russia's version of Edward Teller. **In 2019, a 506-page book of tributes to his work was published in Russia, "*BORIS LITVINOV: FACETS OF PERSONALITY*", published in 2019, which begins with the following quotation from Litvinov: "By the way, a bomb designed for rapid self-destruction, makes it easier to create long-term useful technologies."** (VNIITF also has a **1 hour recent film about him on their**

website, quoting his political books, with his colleagues talking how he remembered the German attack of 22 June 1941, how Russian victory in the war led to progress, and prestige now needs to be restored following the tragic break-up of the USSR. You get the idea...) **Boris Litvinov is one of the four authors of the article "History of the nuclear weapons industry" in the Russian journal *Atomic Energy*, Vol. 86, No. 6, 1999, pages 402-410),** which states:

"The creation of the nuclear weapons industry in the Soviet Union is correctly considered as one of the greatest achievements in Russian history. It has been accompanied by the defeat of fascist Germany and space flights to constitute the Soviet Union as a superpower. ... The stocks of uranium (100 tons) accumulated in Germany passed to Soviet physicists in 1945 and were used to construct the F-1 reactor in Laboratory No. 2, which was the first such reactor in the USSR and in Eurasia. ... 31 theoreticians ... participated in various ways in the work on the RDS-37. ... The energy release was 1.6 Mt of TNT equivalent. The USSR was ahead of the USA, which tested a similar thermonuclear aircraft bomb half a year later on May 21, 1956. ... In 1956, NII-1011 had obtained a commission to develop an aircraft bomb containing a gigantic thermonuclear device ... mass about 25 tons. The bomb should have been dropped for bombardment purposes by M-2 and Tu-95 aircraft. Design studies showed that such a bomb could be carried to the target only by the Tu-95 after its bomb bay and framework had been modified provided that the dimensions were reduced to 1.8m in diameter and 8m long with a mass of not more than 25 tons. NII-1011 in 1956-8 worked on the design of that bomb and performed theoretical calculations on the thermonuclear device, but in connection with the moratorium on nuclear tests, manufacturing the body parts was halted, and the only body remaining after the summer tests was destroyed. The work on the device was halted. Nuclear tests were renewed on September 1, 1961. A body was prepared for the gigantic bomb. On October 31, 1961, the world's largest thermonuclear device was exploded above Novaya Zemlya, which had been developed at KB-11 under Sakharov's direction. It was designed for a total energy production of 100 Mt of TNT equivalent, and the device was tested at a height of 4000 m for half the energy production in order to reduce the radioactive contamination of the atmosphere and the effects of the shock wave. ... Somewhat later, a similar thermonuclear device yielding 20 Mt was proposed by KB-11. Out of the gigantic devices tested, only two were adopted as weapons and were for a certain time part of the strategic rocket armament: one developed by NII-1011 and the other by KB-11. ... With the start of reform, the attitude of the country's government to nuclear weapons began to change. The nuclear weapons industry attained its apogee at that time. It was apparent that its experts could resolve any problem in supplying nuclear weapons to the Soviet army although there was an ongoing and considerable lag in Soviet computing behind American."

ABOVE: **30 August 2000 Secret CIA Intelligence 23-page technical Memorandum, "Evidence of Russian Development of New Subkiloton Nuclear Warheads", now declassified with deletions at https://www.cia.gov/readingroom/docs/DOC_0001260463.pdf** states that these 0.3 kt tactical/battlefield (so-called "non-strategic" in the obfuscation jargon popular with disarmers) nuclear warheads "blur the boundary between nuclear and conventional war ... as an 'asymmetric response' to US superiority in conventional weapons [e.g., Russian 0.3 kt nuclear weapons will be used when they run short of conventional weapons in the ongoing Ukrainian war, as the West replenishes Ukrainian conventional weapons to enable it to destroy Russian conventional arms]. According to Sergei Rogachev, Deputy Director of the Arzamas-16 nuclar weapons design laboratory: 'Russia views the tactical use of nuclear weapons as a viable alternative to advanced conventional weapons'." Note that these tactical Russian nuclear weapons originated, like the American neutron bomb, from early efforts to produce peaceful nuclear explosives for purposes such as space travel (*e.g. American "Project Orion", led by Theodore Taylor and Freeman Dyson, employing Lawrence Livermore's relatively clean, i.e. low fission yield and high fusion yield nuclear warhead designs Dove and Starling, which had little fallout but a huge 14.1 MeV neutron output, motivating Sam Cohen to propose using them for*

https://www.cia.gov/readingroom/docs/DOC_0001260463.pdf

~~Secret~~

TIER 10/6

Intelligence Memorandum

Office of Transnational Issues *30 August 2000*

(b) (1)
(b) (3)

Evidence of Russian Development of New Subkiloton Nuclear Warheads

CIA OTI IN 2000-011 X

public statements by Russian scientists and officials since 1993 indicate that the last nuclear warhead designed during the Soviet era was a device tailored for enhanced output of high-energy X-rays with a total yield of only 300 tons.

Judging from Russian writings since 1995 and Moscow's evolving nuclear doctrine, new roles are emerging for very-low-yield nuclear weapons—including weapons with tailored radiation output—and there are powerful advocates for development of such weapons in the country's military and weapons community. The Moscow press claimed that a draft presidential edict from Yel'tsin called for "development of new-generation nuclear weapons."

APPROVED FOR RELEAS
DATE: OCT 2005

- Recent statements on Russia's evolving nuclear weapons doctrine lower the threshold for first use of nuclear weapons and blur the boundary between nuclear and conventional warfare. Very-low-yield nuclear weapons reportedly could be used to head off a major conflict and avoid a full-scale nuclear war.

In the post-Soviet era, the need for subkiloton nuclear weapons with minimal long-term contamination has been argued in the media by senior Ministry of Atomic Energy (Minatom) officials, nuclear weapons scientists, and military academics since the mid-1990s. Advocates often claim to know that the United States is developing the next generation of nuclear weapons and argue that Russia must not lag behind. Somewhat inconsistently, they also cite clean, very-low-yield weapons as an "asymmetric response" to US superiority in conventional weapons. According to Sergei Rogachev, Deputy Director of the Arzamas-16 nuclear weapons design laboratory: "Russia views the tactical use of nuclear weapons as a viable alternative to advanced conventional weapons."

- Senior Russian military officers have advocated the use of highly-accurate, super-low-yield nuclear weapons in Russian military journals such as *Military Thought* and *Armeyskiy Sbornik*. Deputy Commander in Chief of the Strategic Rocket Forces Muravyev stated that to have an effective impact across the entire spectrum of targets, strategic missile systems should be capable of conducting surgical strikes in a wide spectrum of ranges with minimal ecological consequences, which could be achieved with low-yield nuclear weapons.

Soviet Era Development of Tailored - Output Nuclear Devices

Russian development of nuclear devices tailored to enhance certain types of radiation

- Former Atomic Energy Minister Mikhaylov, and national security commentators have des boundaries between conventional and nuclea advocated developing a new generation of nu yields that would change the perception of nu destruction. In 1999, he claimed that these ne sharply lower the psychological threshold of the likelihood of a nuclear strike in a local co Russian military newspaper.

- ***The development of low-yield warheads that systems would be consistent with Russia's in deter conventional as well as nuclear attack perceptions of a heightened threat from NA Russian conventional forces.*** Russia has no military capabilities in the foreseeable future, procurement and deployment of advanced we at the nonnuclear level.

The possible diverse applications for subkiloto tactical battlefield weapons to antisatellite wea current modernization plans will affect Russia's weapons. According to the December 1999 issu

"For an effective impact across the entire sp should be capable of conducting 'surgical' s shortest period of time with minimal ecologi using highly accurate, super-low-yield nucle and requires the highest accuracy."

The range of applications will ultimately be de doctrine, and could include artillery, air-to-air weapons, or multiple rocket launchers against

NOTE: the last Russian nuclear Ukraine was on 16 September 1 the same 0.3 kiloton (300 tons new Russian battlefield tactica Because of the atmospheric nu time, it was set off 900m below Ukrainian coal mine at Yunkom "safety precaution" allegedly to This mine "resumed normal ope

Russia's Evolving Nu

Since the dissolution of the USSR in 1991, Mo major shift with respect to the possible use of n Russia's conventional military capabilities led t nuclear deterrence as early as the fall of 1992.

military deterrent purposes (a W66, W70 and W79 enhanced neutron output devices), and in this peaceful project "coincidentally" tested a similar 0.3 kt tactical explosive (PNE-30) according to statements by the developers. Clean PNE devices were in effect the first enhanced-radiation devices produced in Russia and likely precursors of tailored-output devices developed later for both effects testing and weapons development, which involved the same scientists (see appendix B for detailed discussion).

output began during the Soviet period when "clean" nuclear devices—that is with reduced contamination from fission products—were needed for peaceful nuclear explosions (apon 90) according to statements by the developers. Clean PNE devices were in effect the first enhanced-radiation devices produced in Russia and likely precursors of tailored-output devices developed later for both effects testing and weapons development, which involved the same scientists (see appendix B for detailed discussion).

Enhanced radiation weapons are designed to increase the effective range of gamma, neutron, X-ray, or electromagnetic pulse effects beyond the range of the airblast and fireball effects. Clean PNE devices are designed to minimize contamination from fission products by maximizing the fraction of the total yield produced by fusion. The two objectives are achieved by similar design approaches.

deter any large-scale conventional aggression in Russia

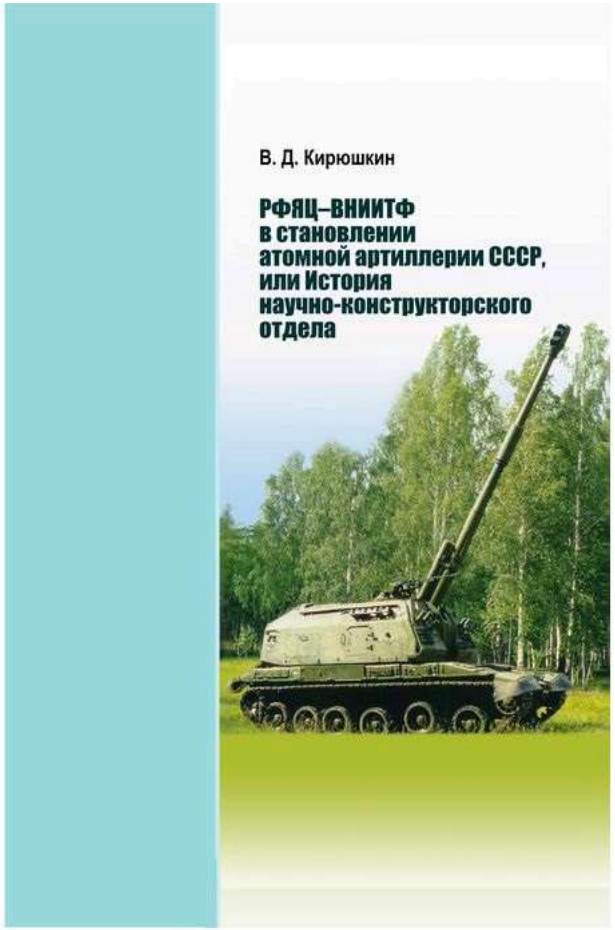
This concept in turn necessitated a rethinking o by President Yel'tsin—that Moscow would ne November 1993 statement of *Basic Provisions Federation* clearly departed from the decade-old weapons and adopted a broadened concept of nu nonnuclear threats to Russia. As a warning to p might use nuclear weapons first if an aggressor operation of Russia's strategic nuclear forces, m and chemical industries.

William J. Broad wrote in his 5 February 2022 New York Times article *Ukraine Once Gave Up Its Nuclear Arsenal 30 Years Ago — Today, There Are Regrets* (contrary to **disarmament scammers**): **"At the end of the Cold War, the third largest nuclear power on earth was not Britain, France or China. It was Ukraine. The Soviet collapse, totally unforeseen by all but one of the two, resulted in the newly independent Ukraine inheriting roughly 5,000 nuclear arms that Moscow had stationed on its soil. [*Along with the nuclear civil defense underground shelters which have allowed the civilians to survive the invasion and fight back, which were fortunately not also destroyed on the say-so of the anti-civil defence journals Scientific American and Bulletin of the Atomic Scientists*.] The removal of this arsenal often gets hailed as a triumph of arms control. Diplomats and peace activists cast Ukraine as a model citizen in a world of would-be nuclear powers. But ... both Ukrainian and American experts questioned the wisdom of atomic disarmament. The deadly weapons, some argued, were the only reliable means of deterring Russian aggression. ... "We gave away the capability for nothing," said Andriy Zahorodniuk, a former defense minister of Ukraine. Referring to the security assurances Ukraine won in exchange for its nuclear arms, he added: "Now, every time somebody offers us to sign a strip of paper, the response is, 'Thank you very much. We already had one of those some time ago.'" [*Idealists will never be able to understand that trash lies written on paper as treaties or agreements are as worthless as trash speeches and acted handshakes in front of TV cameras. Hitler signed endless such treaty lies and also similarly gave endless lying peace speeches and peace handshakes before his invasions and genocide, as did Stalin and all the other dictators. The media of the 1930s lapped it up then as peacemaking, as it always does.*]"**



From Anthony Loyd, Kyiv, **"Veterans of Kyiv rue the day they gave up their nuclear arsenal", *Friday February 11 2022, 3.00pm, The Times:* "The general who had his finger on the button warns: Don't give up your missiles. ... tritium boosters and fragments of SS-24 "Scalpel" rocket launch systems on tabletops, all that is left of Ukraine's nuclear missile stockpile, once the third largest in the world, as workmen began to box them, taking them away into storage in preparation to close the office for good. 'I knew deep in my soul that we should never have given them away' ..." - https://www.thetimes.co.uk/article/step-into-the-twilight-world-of-ukraines-forgotten-nuclear-silos-ljt9g3dh8** (Only **one nuclear SS18 ICBM base now remains in Ukraine, 25km north of**

Pervomaysk, but it is now just a tourist museum, since all of the nuclear warheads have been removed from the remaining four SS-18 ICBMs on display.)



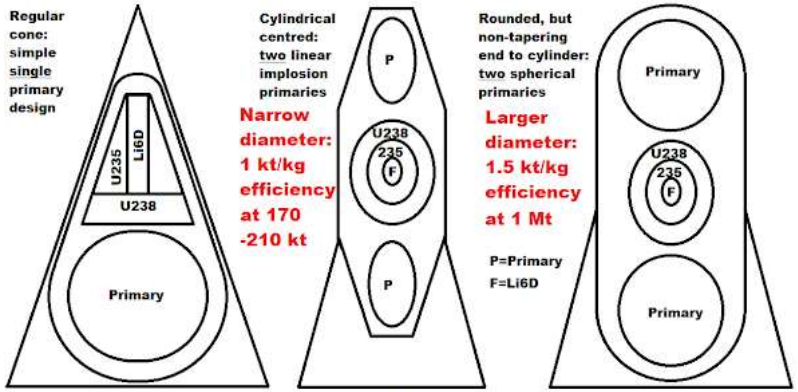
"Liquidation of an emergency gas fountain by a nuclear explosio
birthplace" (Batorin V. D., Mokshenkov M. M., Fokeev S. M.
No. 2, VNIIEF).

The first JAVA RFNC - VNIITF worked on Pamuk ...

Minister of Medium Mechanical Engineering, E. P. Slavsky, cc
development of a small-caliber JAVA RFNC - VNIITF, where
batteries for artillery shells were developed.

The development of a small-caliber java was carried out in the depa
specially organized for the development of designs of a nuclear c
use. However, the schematic design solutions of the primary
nuclear charge for this JAVA were used the same as for the
artillery nuclear charge developed in department 066. ...

The charge developed in the department of P.A. Esin, inter
small-caliber JAVA, was successfully tested at the Semip
on July 15, 1967. And after the complete completion of the de
Java design as a whole, a nuclear explosion was carried out
which ensured the clamping of an emergency gas well at the Pa



Three major designs of thermonuclear weapons in the Russian stockpile today, based on designers testimony

List of literature

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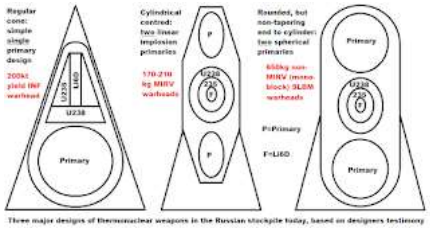
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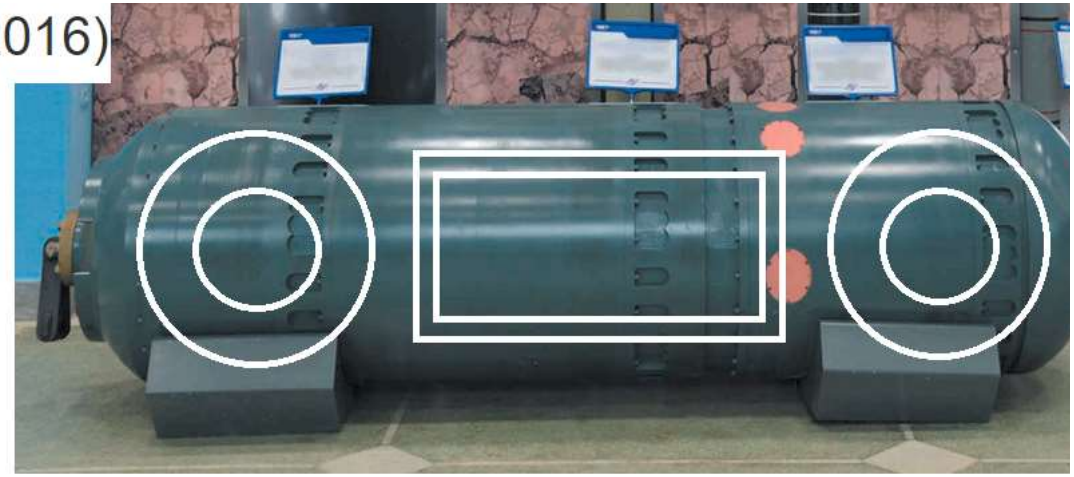
Cleaner Russian nuclear weapons with dual primaries around central D+T gas capsule in tube

Designed for military uses, also used for peaceful tests



Word about Zababakhin (2016)

http://vniitf.ru/data/files/books/slovoozababahine.pdf





Самое чистое ядерно-взрывное устройс
для мирных применен
(The cleanest nuclear explosive device for peaceful applicatio

Самый малогабаритный
ядерный артиллерийский снаряд
(The smallest nuclear artillery projectile)

ABOVE: **declassified Russian photo of the the 99.85% clean (fusion) Russian nuclear warhead (referred to the secret CIA report above), originally developed by E. I. Zababakhin at Russia's VNIIFT (the Russian Federal Nuclear Center, *All-Russian Research Institute of Technical Physics*) nuclear weapons lab for "peaceful" uses, but more recently weaponised and put into the unregulated Russian tactical (aka "non-strategic") nuclear warhead stockpile, for use in coercing and overcoming Western defences which now lack purpose designed tactical nuclear weapons W54 and W79. This photo is directly taken from VNIIFT's own book *A WORD ABOUT ZABABAKHIN - COLLECTION OF MEMORY* (second edition, corrected and enlarged book by vniitf, published in the closed city Snezhinsk in 2016, with an Editorial foreword stating: "... the editors considered it possible to update the biographical information of the memoirists and include previously unpublished materials, such as those declassified**

..."), online on their website in PDF form (along with other useful books, containing previously classified data and photos of Russian nuclear warhead designs and tests). This book states on pages 6-7 that the Russian cleaner tactical nuclear weapons were first tested in 1965 when tritium and deuterium in gaseous form replaced solid lithium deuterium, in an experiment to reduce the yield of cleaner weapons to the minimum:

"In terms of volume and breadth of coverage, the program of physical experiments VNIITF has no analogue among all the world's nuclear weapons centers. Of particular importance was a physical experiment conducted in 1965, in which thermonuclear combustion of gaseous deuterium and gaseous deuterium-tritium mixture was carried out. This experience marked the beginning of the development of a new type of atomic charges, the use of which in thermonuclear munitions made it possible to significantly reduce their dimensions and mass, which was very important for the creation of multiple warheads of missile systems, both ground-based and underwater-based. Its results were also in demand in the creation of nuclear explosive devices (NED) for peaceful applications. Peaceful Use of Nuclear Explosions Eugene Ivanovich paid special attention. Under his leadership, VNIITF became a leader in development and use of devices for peaceful nuclear explosions: from the conducted in the USSR 124 peaceful nuclear explosions in 75 development devices were used VNIITF. ... The experience of 1965, in the development and implementation of which Evgeny Ivanovich took personal active participation, was useful for both types of NED. ... Works performed by VNIITF under the scientific supervision of E. I. Zababakhin were marked by high government awards: received 10 Lenin and 20 State Prizes, 4 employees of VNIITF became Heroes of Socialist Labor, many employees received orders and medals of the USSR." **Page 15 adds:** ***"In recent years, the VNIIP team under the leadership of E. I. Zababakhin has been actively involved in search of ways to reduce fragmentation [fission fragment residual radioactivity] activity in special atomic and thermonuclear charges of high purity, intended for overburden work. To extinguish a flowing gas well under the guidance and directly with the participation of E. I. Zababakhin, a special small-caliber atomic charge was created."***

ABOVE: first Russian MIRV for SLBM was 170 kt yield, 170 kg mass warhead (1974); the first Russian MIRV for ICBM use was a 210 kt yield, 210 kg mass warhead (1978). Both of these signify the 1 kt/kg limit achievable for the small-diameter MIRV warheads (2 MIRV's in the SLBM missile, 3 warheads in the bigger ICBM), using the dual linear-implosion Russian thermonuclear design. However, Russia had earlier put 1 megaton 650 kg, i.e. 1.5 kt/kg "monoblock" (single warhead) on SLBM's in 1974. The design here was more efficient, since it used two spherical primary stages (one on each side of the central thermonuclear charge), rather than two linear-implosion primary charges around the thermonuclear charge which had to be used in the later, smaller-diameter MIRV warheads. All of these weapons employing two primary stages were less "efficient" than the single-primary two-stage Western designs, but they had advantages to Russia in terms of the reduced cost and complexity. (In WWII, cheap Russian tanks overrun more costly German Panzer tanks, because of their sheer numerical superiority: Russia could afford to employ several of their cheaper tanks to destroy one Panzer. Having two primaries means you can use simpler, cheaper primary stages, that don't require boost gas, etc. Russian warheads are mass-produced, unlike hand crafted Western devices. It is the Ford Model-T versus the Rolls Royce Silver Ghost. Which made the most impact?)

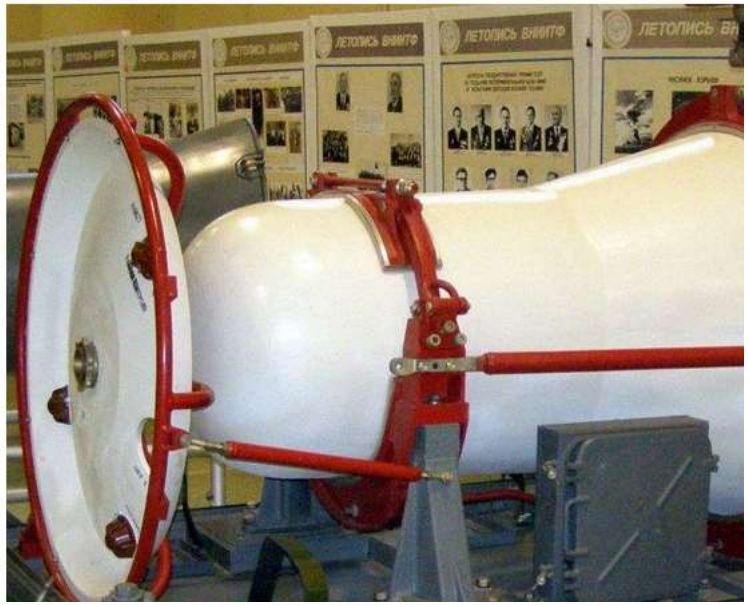




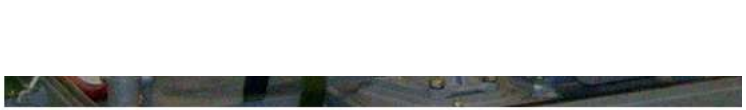
Warhead for the first multiple reentry vehicle of a sea-launched ballistic missile. As part of the product thermonuclear charge and devices of the automation system, which have minimal dimensions, are use developers, the project was called "One Hundred per Hundred" (to accommodate 100 kilotons of power charge). The dense layout of the components of the warhead made it possible to create a light and sma that meets the requirements for placing three warheads on one launch vehicle. The mass of the warhea kt/kg objective suggests it has a yield of 170 kt if design yield was achieved. The product was put into



The first warhead of a multiple reentry vehicle aiming at aiming points, weight 210 kg. The pr service in 1978. Again, the 1 kt/kg objective su





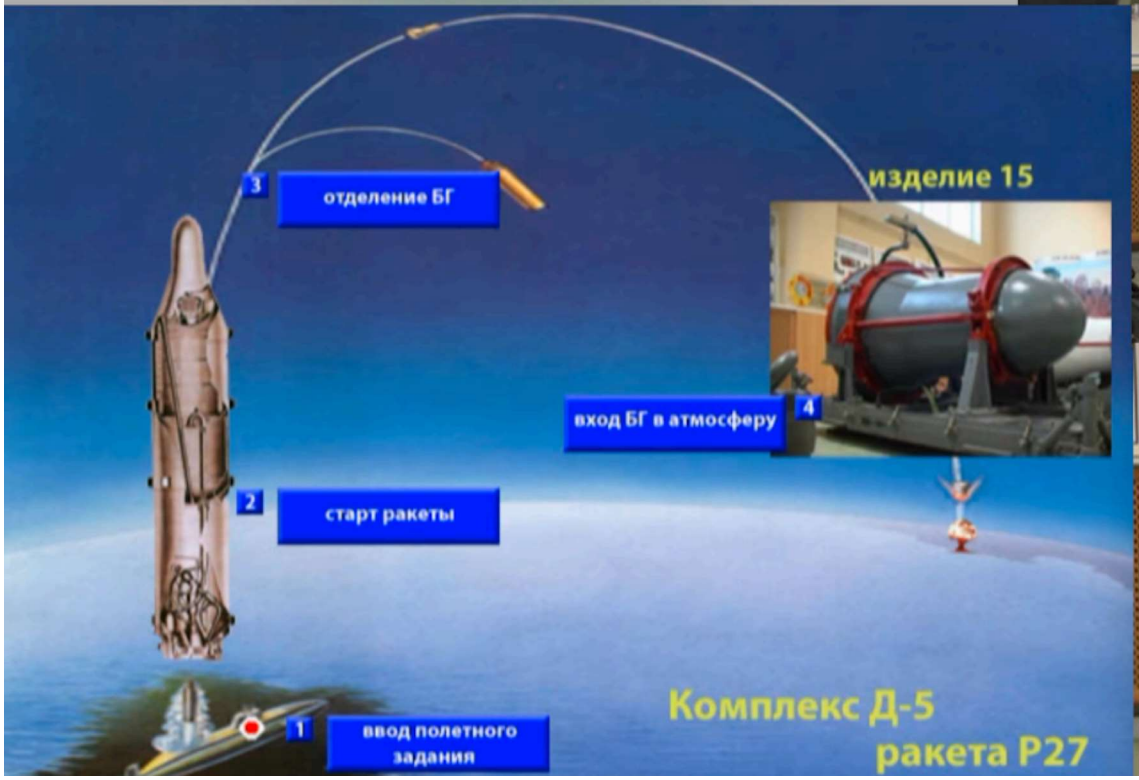


SLBM non-MIRV, weight 650 kg, 1 Mt. Put ir

These examples suggest that dual linear imploded primary devices gave 1 kt/kg; dual spherical primari


изделие 255А13


издел


3
отделение БГ
изделие 15
вход БГ в атмосферу
4
2
старт ракеты
1
ввод полетного задания
Комплекс Д-5
ракета Р27

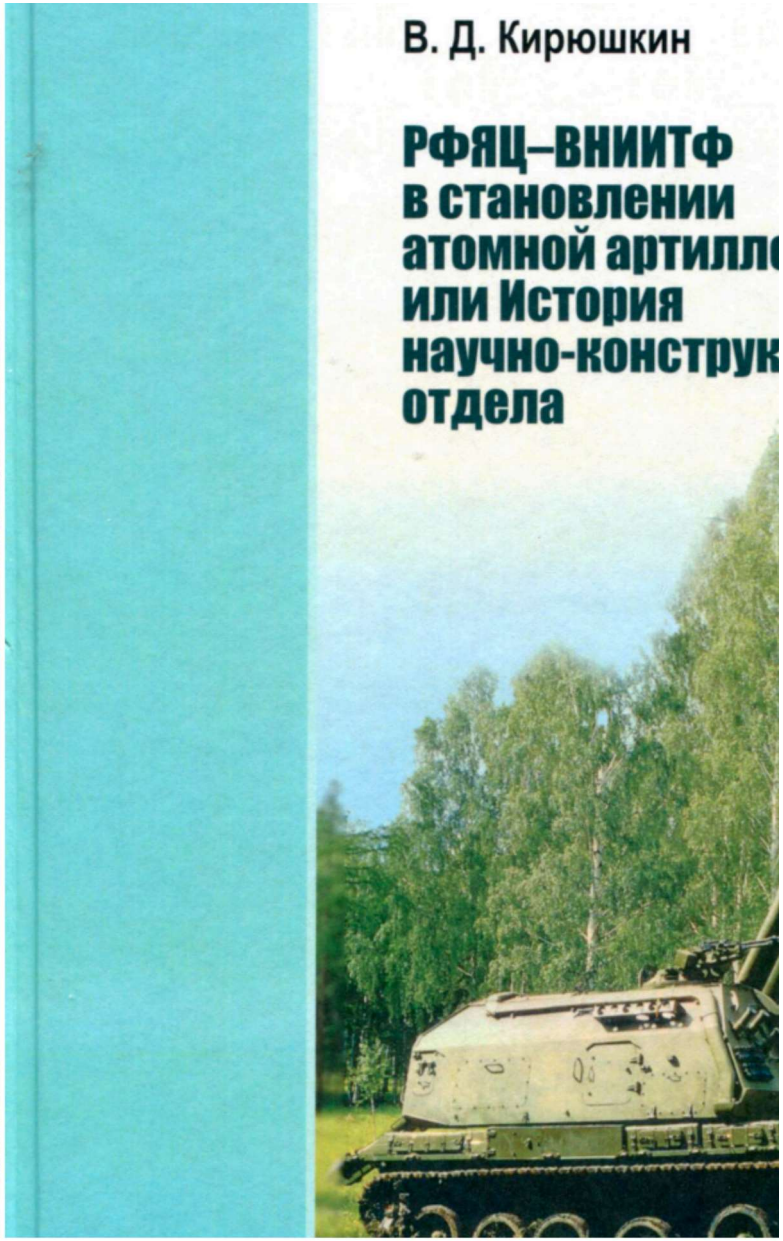

изделие 46




раке




БЕЗ ПРАВА НА ОШИБКУ


В. Д. Кирюшкин
РФЯЦ–ВНИИТФ
в становлении
атомной артилл
или История
научно-конструк
отдела

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RFNC - VNIITF in the development of the atomic USSR

A witness and participant in the events tells about people, their deeds and problems associated with equipment for artillery ammunition for artillery and mortar systems and not only. The book is addres readers interested in the history of the Soviet atomic project and the RFNC - VNIITF. academician E

2011

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K43

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ABOVE: this book, RFNC-VNIITF in the Development of the atomic artillery of the USSR, is available online in full here: **http://elib.biblioatom.ru/text/kiryushkin_rfyats-vniitf-atomnoy-artillerii_2011/go,0/**. Published in 2011, it confirms the secret CIA report from 2000 which gave evidence that Russian work in the 1960s on cleaner peaceful low-yield (subkiloton) small-diameter dual linear-implosion devices compressing levitated pushers with gaseous thermonuclear fuel (tritium and deuterium) was combined with tactical nuclear weapons for military use by the RFNC-VNIITF based in Snezhinsk, Russia. Such devices may well be more efficient as neutron bombs than the USA's single-primary W79 enhanced neutron weapon, which was 0.8 kt fission and only 0.3 kt fusion (if the removable D+T capsule was inserted; if not it was just a pure fission 0.8 kt linear implosion shell). Please also see this book on the assembly of the 50 megaton RDS-202 test design, again in Russian, giving further details of the general approach to nuclear warhead design by Russia, showing on page 38, chapter 4 section 4.1, "Assembly of the main module", that Tsar Bomba 50 megaton bomb's fusion charge was a hollow sphere (of Li6D) with section 4.2 indicating that it had a composite core (e.g. U235 and Pu239) fissile sparkplug (illustrated below): **http://elib.biblioatom.ru/text/kiryushkin_kuzkina-mat_2015/go,0/?bookhl=**

2015 book: Кирюшкин В. Д. ПРАВДА О «КУЗЬКИНОЙ МАТЕРИ» Translated from the Russian (book abo

Chapter 4

The product "202" is prepared for full-scale tests!

(Fusion charge is hollow sphere)

4.1. Assembly of the main module

The assembly of the module was carried out exactly on schedule (09.08.56). I remember well that the next day after the assembly, where I participated in the work of the acceptance commission, a technical meeting was held [12] at the main coordinator of the Research Institute-1011 to discuss the results of theoretical design and experimental work on the product RDS-202, which I was invited too.

The module was assembled under normal conditions, with uncontrolled humidity in the assembly shop. The moisture-proof coating applied to parts made of lightweight material, developed according to our technical task in the laboratory of special production (based in production buildings 33 and 26), which was led by V. N. Purusov, allowed to remove the requirements for air humidity in the assembly room. This coating has found further application and development in the nuclear dawn- completion, removing the requirements for the humidity of the assembly rooms in the mass production of this type of units.

To represent the scale of the module assembly, here is a small picture.

During the assembly of the module, before checking the gaps in the joints of the faces of the five- and six-sided elements that formed a spherical layer after laying in the lower hemisphere of the housing (as in a bowl), sending them into place to seal and align the gaps in the joints of the faces (with the aim of further filling the gaps with gaskets) was carried out by an employee of the Istomin plant* not with his hands, and with his feet (!), in slippers, "dancing" on the "naughty" part inside the bowl - the housing of the module. Of course, such an action was not provided for in the instructions for assembling the module, but the scope of work allowed it (even required it: instead of using the efforts of the hands, use the strength of the legs), and with the permission of all members of the commission, he - a young member of the commission and an official representative of the OTC, an athlete-athlete - found a way out of the difficult situation.

4.2. Critical mass measurements of the main node of the primary module

Before assembling the primary module, control critical mass measurements

The product "202" is fully prepared for

they are made of a special material of a new com
the product "202". Therefore, our experimental p
and B. A. Predein, together with V. Yu. Gavrilov,
the physical characteristics of the node and the
out a set of control physical measurements. T
on the equipment of KB-11 in the laboratory of B.
warm- Gustovsky nights of 1956. We started at a
official working day ended, and all the lab work
busy with their personal affairs. And we finis
the next day. In the process of taking measurem
repeat. It also took time to adapt to the conditions
and to capture the features of the material.

4.3. Acceptance of the MVK product

Acceptance of the product "202" was carrie
following order of the Minister [13].

"1. To check the 202 product manufactured in
drawings and specifications approved by the ch
Institute-1011, and to accept this product, create a
Iskra A.D. - Chairman of the commission, Shchelkin
K. I. - member of the commission, Negin
E. A. - member of the commission,
Grechishnikov V. F. - member of the commission,
Pokrovsky N. V. - member of the commission,
Vasyukov A.M. - member of the Commission,
Shvilkin N. G. - member of the commission.

2. Finished, assembled and accepted by the
of KB-11 and special acceptance No. 206 produc
together with a set of equipment equipment, a
documentation for the product and equipment eq
and technical documentation approved by the c
Institute-1011, are presented to the commissio
of KB-11 T. Muzrukov B. G.

3. The Act Commission on the acceptance of
conclusion on its suitability for testing to submit to me for ap

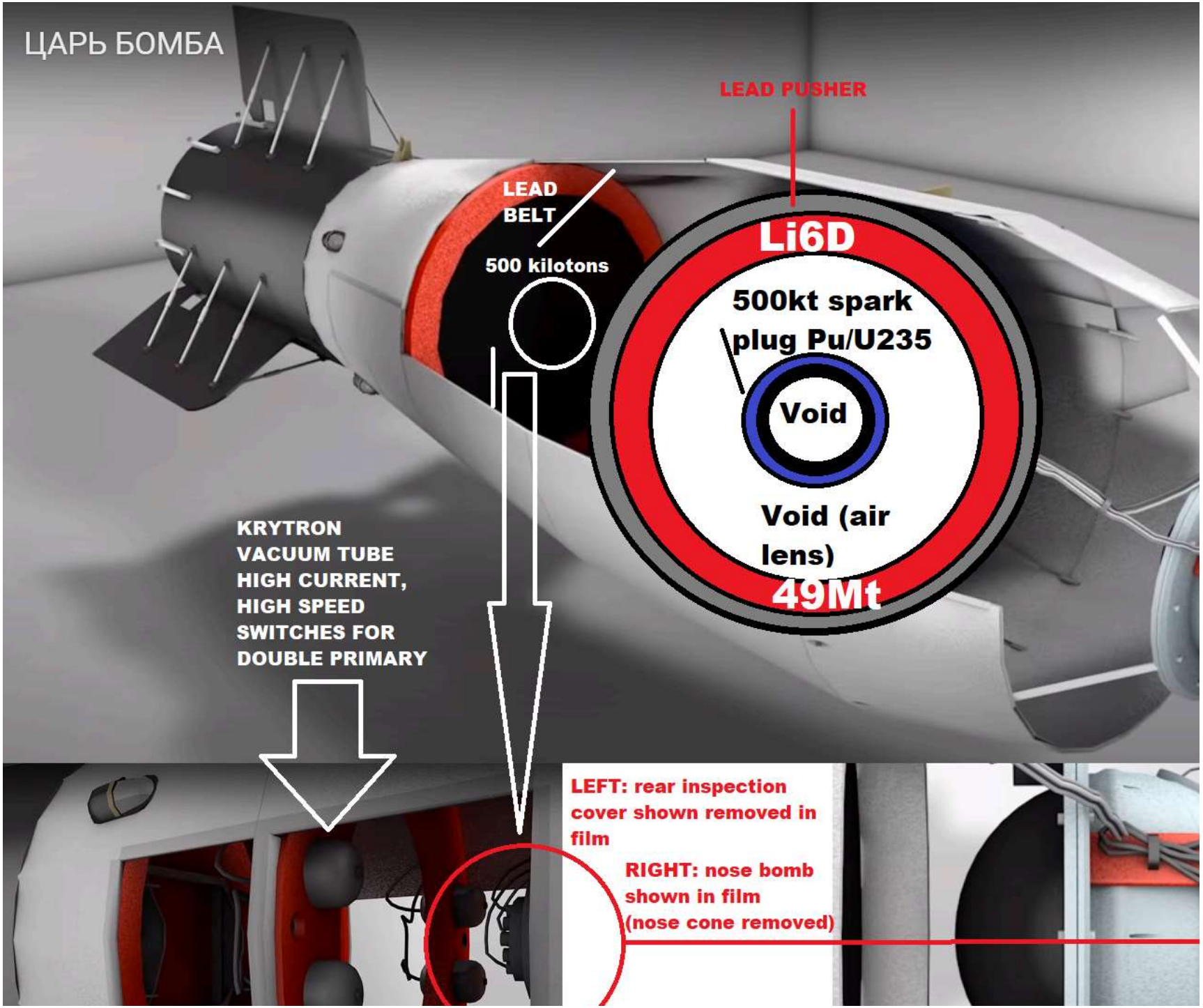
were carried out. By this time, the main node for the primary module was also received from Plant No. 817 . The details of this node were fulfilled-

• Unfortunately, I don't remember his name and patronymic.

Primary = main (fusion) central charge

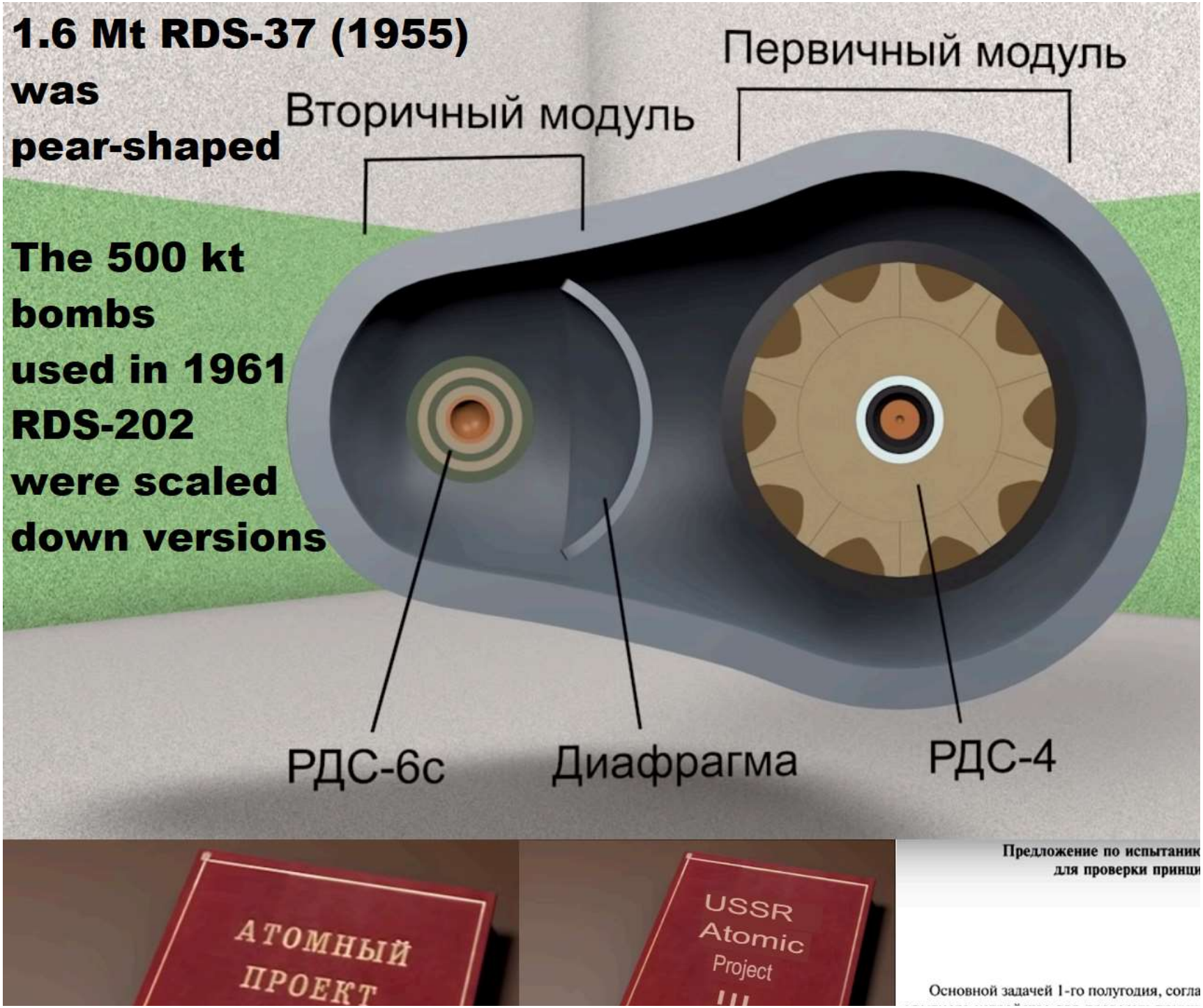
The acceptance of the product "202" was carried ou
specialists from KB-11, the Main Department of MS
and was headed by a representative of the military a


БОД
ПРИКАЗ

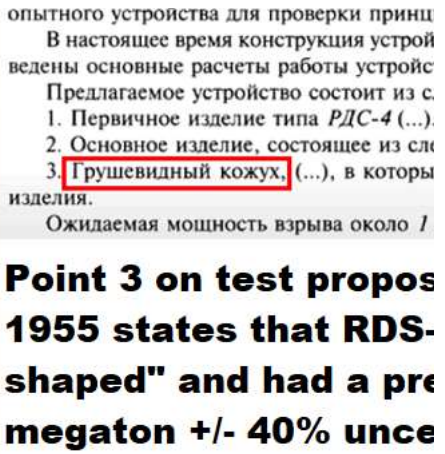

ЦАРЬ БОМБА
LEAD PUSHER
LEAD BELT
500 kilotons
Li6D
500kt spark plug Pu/U235
Void
Void (air lens)
49Mt
KRYTRON VACUUM TUBE HIGH CURRENT, HIGH SPEED SWITCHES FOR DOUBLE PRIMARY
LEFT: rear inspection cover shown removed in film
RIGHT: nose bomb shown in film (nose cone removed)



ABOVE: latest declassified information on design of the 1961, 50 megaton RDS-202 Tsar Bomba shows it contained a central hollow sphere made up of lego like pentagons of lithium deuteride which has to be assembled by a worker stamping on them in slippers (inside each huge hemisphere), and contained a central 500 kt hollow composite core spark-plug (to fission the lithium in the compressed Li6D to give tritium for fusion). This better accounts for the actual weight of the device than a solid central sphere, and also explains the 2-3% fission yield better. Two "pear-shaped" 1.6 Mt 1955 two-stage RDS37's were scaled down to 500 kt each, to act as initiators of the main charge in 50 Mt RDS202, irradiating its pusher from both sides. (The discussion of evidence declassified of this design later in this post will, for simplicity, omit the details of the hollow central spherical fusion charge and its fissile core.)


1.6 Mt RDS-37 (1955)
was
pear-shaped
The 500 kt
bombs
used in 1961
RDS-202
were scaled
down versions
Вторичный модуль
Первичный модуль
РДС-6с
Диафрагма
РДС-4
АТОМНЫЙ
ПРОЕКТ
USSR
Atomic
Project
Предложение по испытаник
для проверки принци
Основной задачей 1-го полугодия, согла




опытного устройства для проверки принц
В настоящее время конструкция устрой
ведены основные расчеты работы устройс
Предлагаемое устройство состоит из с
1. Первичное изделие типа *РДС-4* (...).
2. Основное изделие, состоящее из сл
3. Грушевидный кожух, (...), в которы
изделия.
Ожидаемая мощность взрыва около *1*

**Point 3 on test propos
1955 states that RDS-
shaped" and had a pre
megaton +/- 40% unce**

ABOVE: the original 6 June 1956 report on the design for a 25 ton air drop test, RDS202, had a predicted yield of about 38 megatons and was a derivative from the two-stage RDS-37 test of 1955. It was postponed (not cancelled) by a request on 16 May 1957, owing to successful tests of products 245 and 205, and the final test of the approximately 25 ton bomb in 1961 employed an improved double-approach system suggested by Trutnev and others which was capable of increasing the yield by a factor of about 2.5 from the RDS-37 single-approach principle (first tested in 1958), due to its better x-ray coupling efficiency for main fusion charge compression. However, the 1961 test was only 50 Mt not 100 Mt, because it switched the U238 pusher to lead to reduce the fallout and the blast effect.

№ 208

Отчет НИИ-1011 по обоснованию конструкции и расчетам изделия РДС-202

6 June 1956 report on the use of the tested RDS-37 two-stage thermonuclear design to develop a 25 ton, 38 megaton bomb: RDS-202. Note that this design was changed when tested with 50 Mt in 1961

6 июня 1956 г.[1]
Сов. секретно
(Особой важности)
Экз. № *1*

Основные расчетные данные РДС-202

Зам. гл. конструктора Забабахин Е.И.
Начальник 1 сектора Романов Ю.А.

Введение

В настоящем отчете изложено обоснование конструкции РДС-202 и основные расчетные данные этого изделия.

В результате успешного завершения работ КБ-11 по РДС-37 и его испытания был окончательно проверен новый принцип конструирования изделий, позволяющий создавать изделия очень большой мощности с высоким КПД. Результаты всех работ по изделию РДС-37 показали, что на этом принципе могут быть созданы изделия с тротиловым эквивалентом в *десятки и даже сотни миллионов тонн*, а также позволили оценить необходимые для таких изделий количества активных веществ (главным образом Li^6D).

Эти выводы и оценки и послужили основанием для [выдачи] задания нашему институту на разработку нового изделия РДС-202, значительно превосходящего по мощности все изделия, испытанные до настоящего времени как в СССР, так и в США.

В задании на проектирование предусмотрена мощность изделия и количество Li^6D, которое может быть в нем израсходовано, а именно полный тротиловый эквивалент должен составить *20–30 млн т*, общее количество Li^6D (с (...)% содержанием изотопа Li^6) — до (...) *тонн*.

ENGLISH TRANSLATION:

№ 208

NII-1011 report on the justification of the design and calculations of the RDS-202 product

NOTE: This 6 June 1956 report states that they can produce up to about 38 Mt from a 25 ton bomb, using RDS-37 principles. The later revised design used the 1958 tested

June 6, 1956 1
Sov. secret
(of special importance)
Ext. No. 1

SOURCE:

Atomic project of the USSR: documents an [in 3 volumes] / Ed. ed. L. D. Ryabeva. - 199 Hydrogen bomb, 1945-1956. Book. 2 / State corporation. Energy "Rosatom"; comp.: G. (responsible comp.), P. P. Maksimenko. - 2

В результате согласования требований, вытекающих из к и возможностей самолета-носителя, установлены допусти всего изделия, а именно:

общий вес – *до ~ 25 т*,
диаметр – *до (...) м*.

По условиям испытания взрыв должен быть произведе изделия с самолета. При взрыве столь значительной силы собом сохранить самолет-носитель от действия теплового применение парашюта для изделия, сильно замедляющее е ляющее самолету за это время уйти на большое расстояни

Необходимость применить парашют потребовала расхо части из имеющихся весов и объемов, которые в противно использованы для повышения эффективности основной ч

РДС-202 построено по принципу РДС-37 и отличается чительными размерами, связанным с этим заметно лучш ядерного горючего и гораздо большей абсолютной мощно

(...)

Расчетное обследование ряда вариантов конструкции веса Li^6D около (...) *кг*, и оно показало, что в лучшем из риантов мощность заметно превосходит первоначально на и достигает по расчету 38 млн т*). В связи с этим результат для РДС-202 может быть значительно уменьшено.

*) Фактическая мощность должна быть несколько выше, т. к. образ в действительности делится с бóльшим сечением, чем принято в расчет

(Note: the planned RDS202 test was postp 1957 after successful tests of products 24 the basic concept of RDS202, being a very around 25 tons was resurrected later.)

As a result of the coordination of the requirements arising from the product and the capabilities of the carrier aircraft, the permissible weight and s product are established, namely:

Trutnev "double approach" system, about 2.5 times more efficient.

Basic calculation data of RDS-202

Deputy Chief Designer Zababakhin E.I.
Head of Sector 1 Romanov Yu.A.

Introduction

This report outlines the rationale for the design of the RDS-202 and the basic design data of this product.

As a result of the successful completion of the work of KB-11 on RDS-37 and its testing, a new principle of product design was finally tested , which makes it possible to create products of very high power with high efficiency. The results of all work on the RDS-37 product showed that products with a TNT equivalent of tens or even hundreds of millions of tons can be created on this principle , and also allowed us to estimate the amounts of active substances necessary for such products (mainly Li°D).

These conclusions and assessments served as the basis for [issuing] a task to our institute for the development of a new RDS-202 product, significantly exceeding in power all products tested to date both in the USSR and in the USA.

The design assignment provides for the capacity of the product and the amount of Li °D that can be consumed in it, namely, the total TNT equivalent should be 20-30 million tons, the total amount of Li ° D (with (...) % content of the isotope Li °) - up to (...) tons.

total weight - up to ~ 25 t,
diameter - up to (...) m.

According to the test conditions, the explosion must be produced the product is dropped from the aircraft. With an explosion of such a s force, the only way to save the carrier aircraft from the effects of therm radiation is to use a parachute for the product, which greatly slows dow and allows the aircraft to go a long distance during this time.

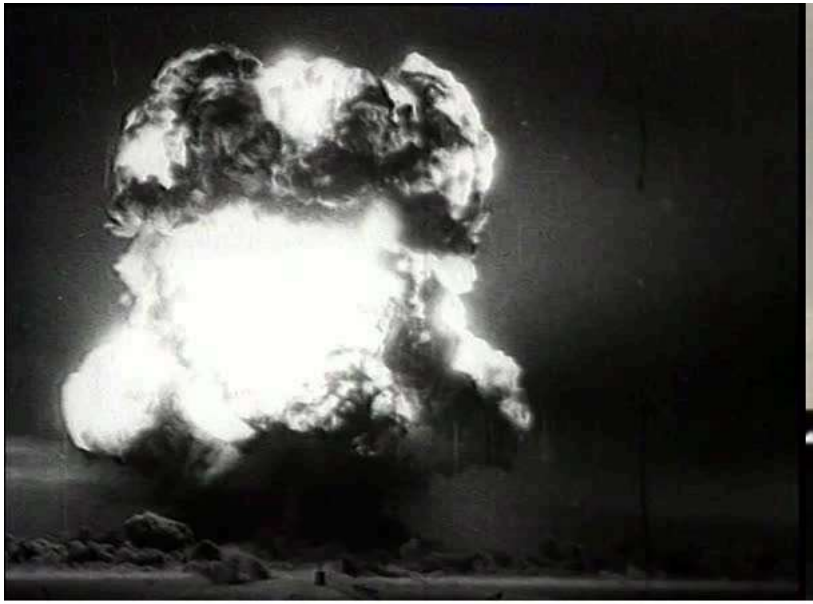
The need to use a parachute required the expenditure of some of the available weights and volumes, which could otherwise be used to increase the efficiency of the main part of the product.

RDS-202 is built on the principle of RDS-37 and differs from it only in significant dimensions, associated with this noticeably better use of nuclear fuel and much greater absolute power.

(...)

A design survey of a number of design variants was carried out fo of Li°D of about (...) kg, and it showed that in the best of the surve variants, the power significantly exceeds the originally intended value reaches 38 million t* according to the calculation. Due to this resul of Li°D for RDS-202 can be significantly reduced.

*)The actual power should be slightly higher, because the U237 formed during actually divided with a larger cross-section than is accepted in the calculation.





1949 f
left 19
left

joe1
joe17





Soviet nuclear torpedo test at No
cloud rising from the surface of t
underwater nuclear torpedo test.
took place on 21 September 1955
Site Novaya Zemlya) of a torpedo
The location was NZ Area A, Chy
Russia. The yield was 3.5 kiloton
positioned at distances ranging f
kilometres. Among the ships wer
submarines, minesweepers and s
sheep, 100 dogs, and other anima
Only one ship was sunk by the ex
300 metres from the explosion.









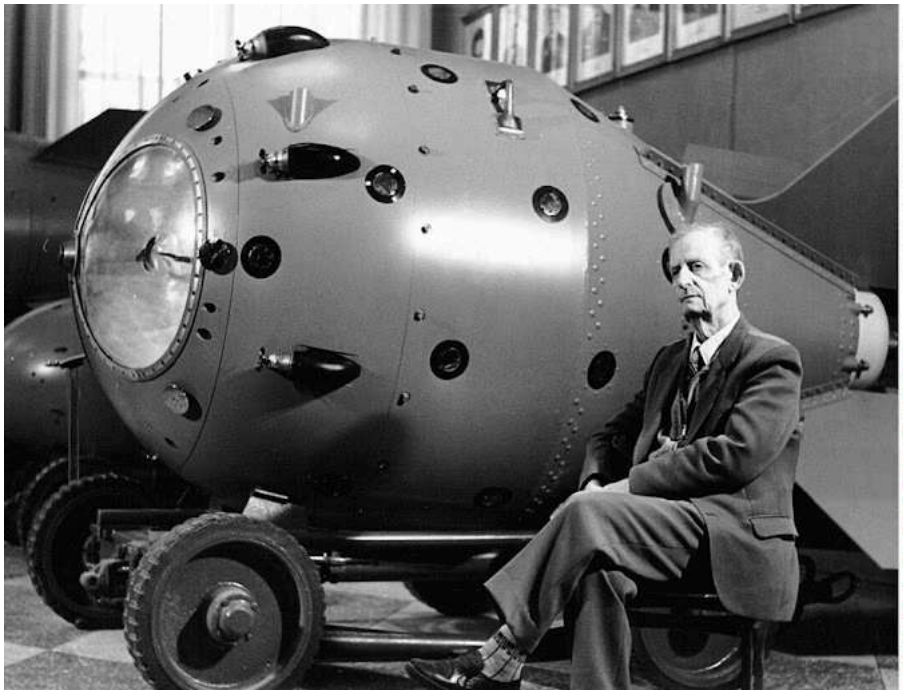
1953 400kt h bomb





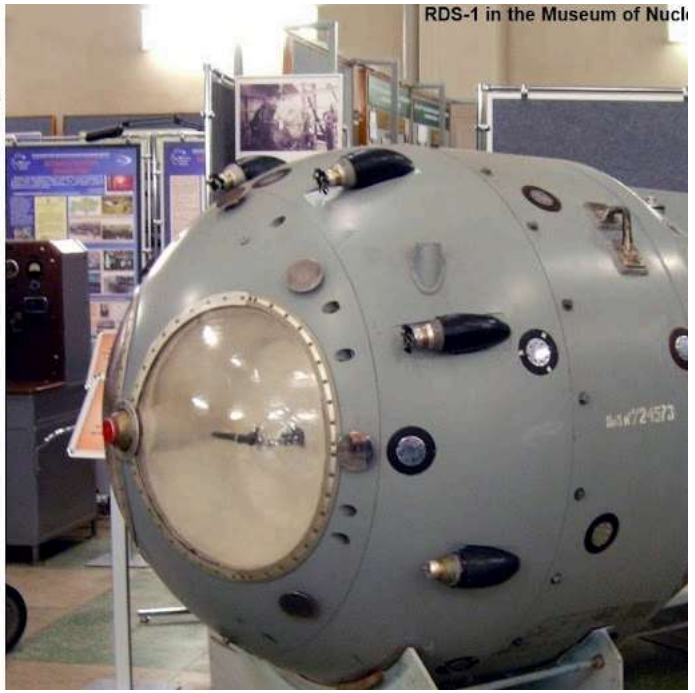






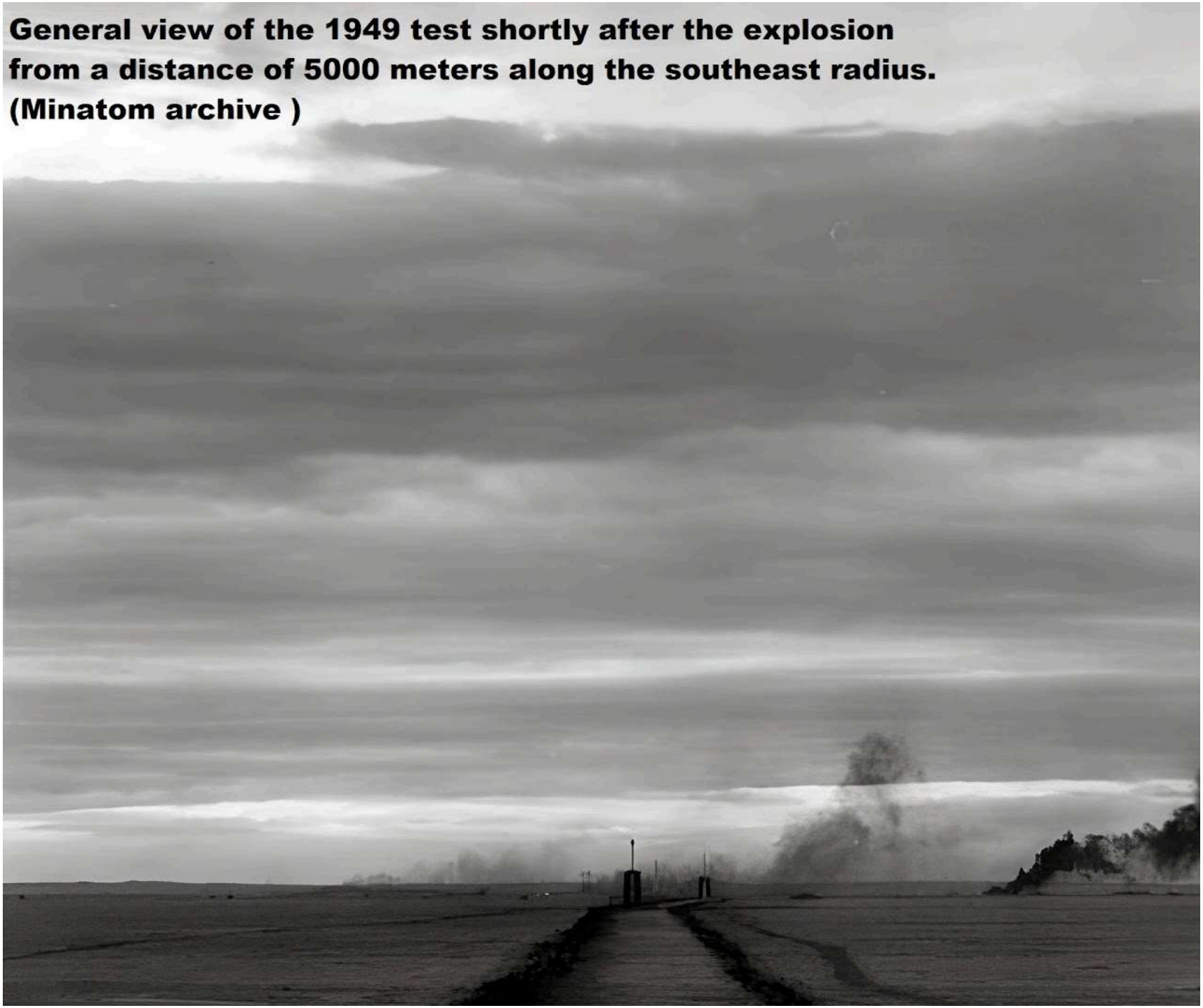
Academician Yu.B.Khariton in the RFNC-VNIIE museum near the body of the RDS-1 bomb. Museum of Nuclear Weapons RFNC-VNNIEF, 1993

This was a 22 kt Russian copy of the American Trinity test. Russian 1949 test site before and after photos are shown below

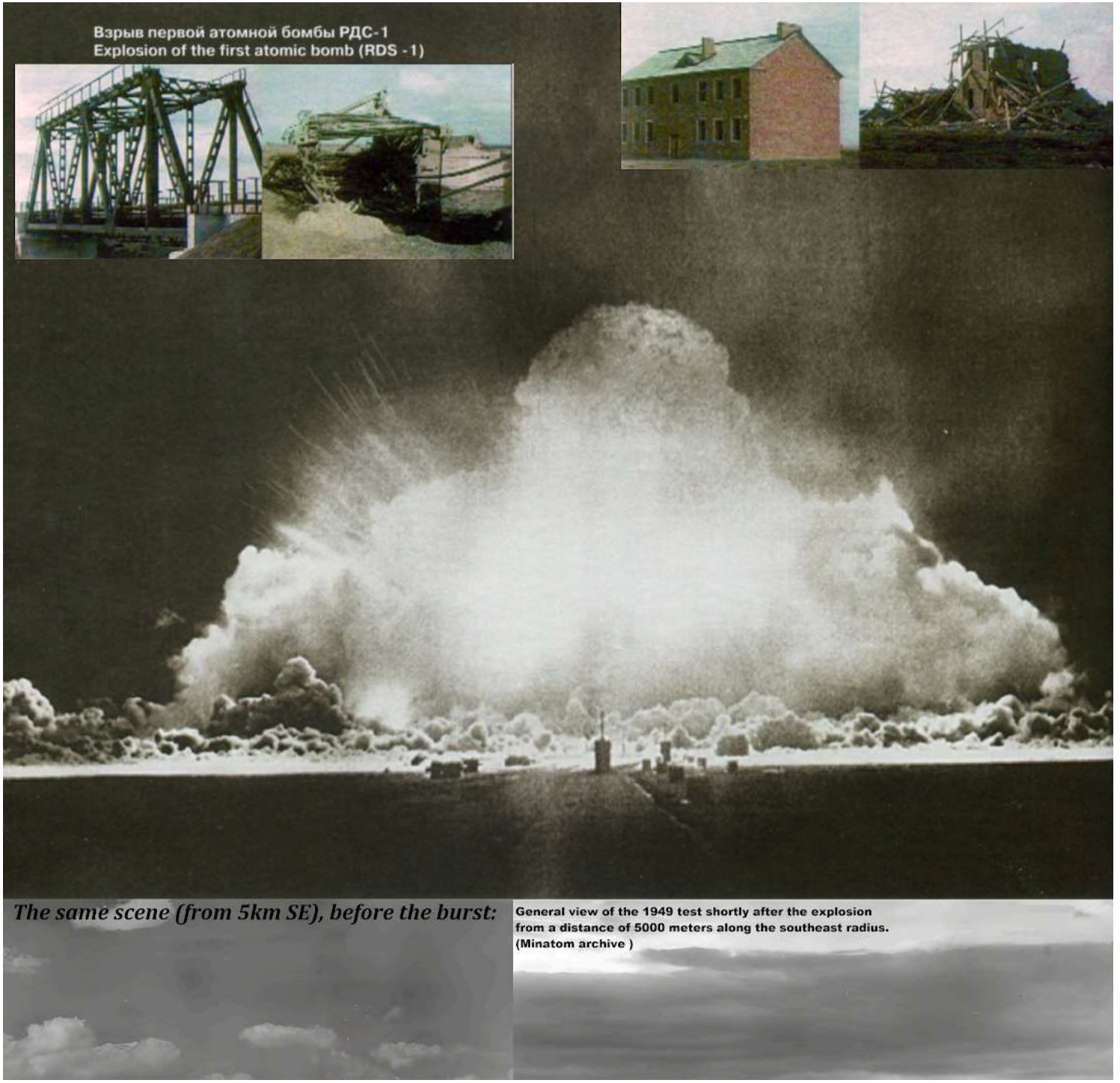







General view of the 1949 test shortly after the explosion
from a distance of 5000 meters along the southeast radius.
(Minatom archive)




Взрыв первой атомной бомбы РДС-1
Explosion of the first atomic bomb (RDS -1)
The same scene (from 5km SE), before the burst:
General view of the 1949 test shortly after the explosion
from a distance of 5000 meters along the southeast radius.
(Minatom archive)



Bomb tower (left) and goose tower (right)



The first Russian nuclear test, 22 kt on top of a 37.5 m high tower, was connected to a network of 560 km of instrumentation cables, which coupled the EMP effect and led to extensive early, practical experience of EMP burn out for Russia.

Only 368 out of 1538 animals exposed were killed, most being adequately protected in simple shelters (an experiment not done at the American Trinity test), leading to the extensive Russian civil defense despite Hiroshima!

ABOVE: 40 kt RDS4 Russian test, air dropped and detonated 350m above the Totskoye, 14 September 1954, in WW2 hero Marshall Zhukov's exercise of 45,000 Russian troops in tactical nuclear war (copying America's Nevada "Desert Rock" nuclear tests with troops in trenches near GZ). **A whole book has been published about the radiation effects from this test, showing that the gamma radiation was 140 R/hr at 30 minutes, at 200 m from ground zero, decaying to 0.8 R/hr at 24 hours, and that a peak fallout gamma dose rate of 100 mR/hr occurred 1.5 hours after burst 70 km downwind, where the fallout pattern was 23 km wide. (*These are useful data to have, since Russia has not yet openly published anything like America's DASA-1251 fallout patterns compendium*.) This is relevant to the whole question of whether Russia really thinks it can use tactical nuclear weapons for military objectives in a limited war: it has actually done the nuclear tests long ago. It is not theoretical!**

Федеральное агентство Российской Федерации
по атомной энергии (Росатом)

Федеральное государственное унитарное предприятие
«Институт стратегической стабильности»

Федеральное управление медико-биологических и экстремальных проблем при министерстве здравоохранения и социального развития Российской Федерации

С. А. Зеленцов (генерал-лейтенант)

ТОЦКОЕ ВОЙСКОВОЕ УЧЕНИЕ

Посвящается 50-летию проведения
Тоцкого войскового учения
(сентябрь 1954 г.)
и вкладу московских ученых
в ядерные испытания

Под общей редакцией научного руководителя
РФЯЦ ВНИИЭФ, академика РАН В.Н. Михайлова

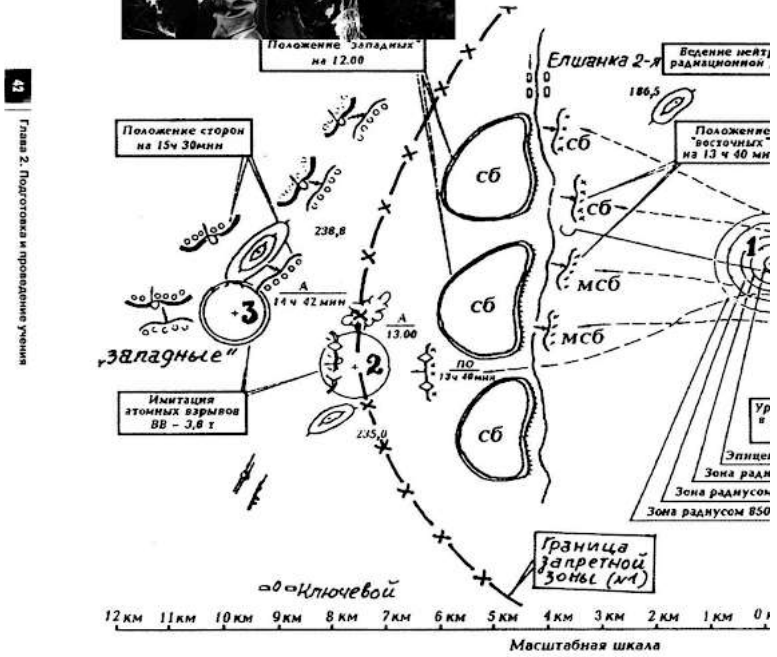
МОСКВА
2006

Сообщение ТАСС:
«В соответствии с планом научно-исследовательских и экспериментальных работ в последние дни в Советском Союзе было проведено испытание одного из видов атомного оружия, целью испытания было изучение действия атомного взрыва. При испытании получены ценные результаты, которые помогут советским ученым и инженерам успешно решить задачи по защите от атомного нападения».

Газета «Правда», 17 сентября 1954 года.







Положение границы запретной зоны и схема действий войск на проводившемся 14

Условные обозначения:
СБ – стрелковый батальон; МСБ – мотострелковый батальон; ПО – передовой отряд; А 13.00 –

Neutron induced activity, R/hr

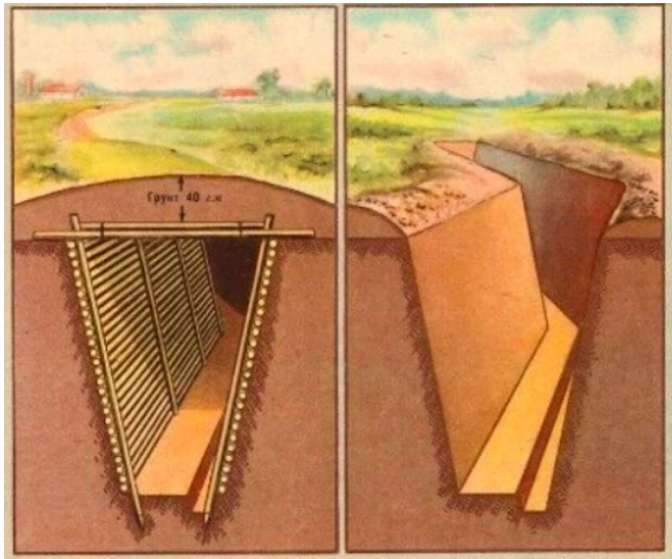


Fallout downwind, mR/hr





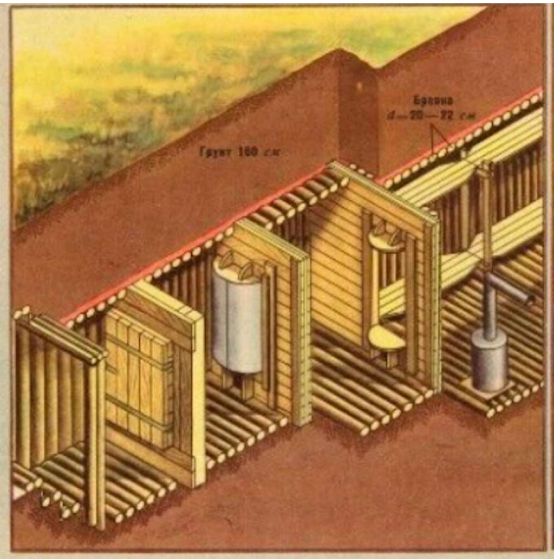
40 kt RDS4 Russian tactical nuclear troop test at 350m altitude on 14 September 1954 near Totskoye.
WW2 hero Marshall Zhukov sent 45,000 troops into the fallout area, 140 R/hr at 30 mins at 200 m radius!

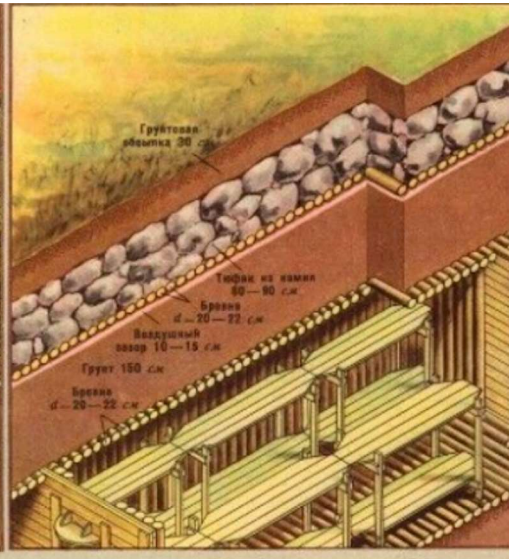


Перекрытая щель уменьшает дозу проникающей радиации в 25—50 раз.

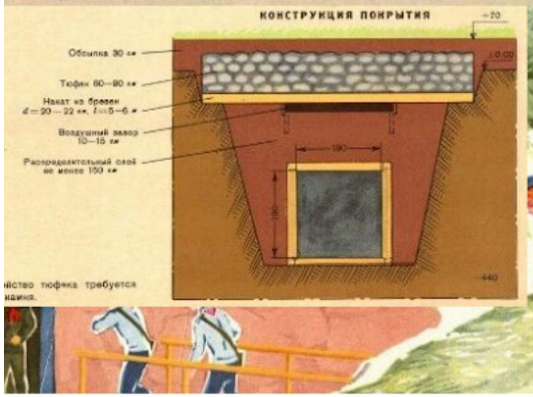
Открытая щель уменьшает дозу проникающей радиации в 5—15 раз.

Щели значительно снижают дозу излучений радиоактивных веществ.





Убежища легкого и тяжелого типов обеспечивают полную защиту людей от проникающей радиации и воздействия радиоактивных веществ.





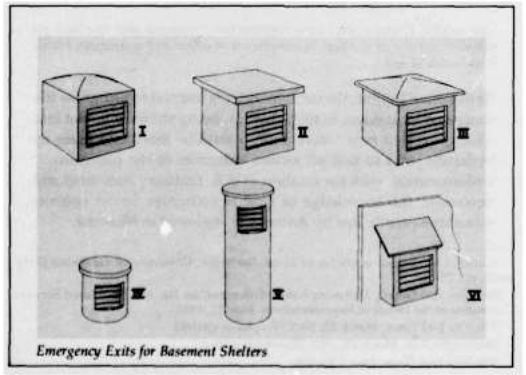
DCPA Contract No. DAHC 20-70-C-0309
DCPA Work Unit 4212A
May 1977

ADA039526

THE SOVIET CIVIL DEFENSE SHELTER PROGRAM

FINAL REPORT

LEON GOURÉ



Emergency Exits for Basement Shelters

By the early 1960s there was a good deal of hard evidence that considerable amount of shelter space in factories as well as public and apartment buildings had been built, and that the Moscow and Leningrad subways had been equipped with concealed blast doors at the entrances to the station platforms and in connecting crosswalks.[6] An ongoing debate in the U.S. at that time concerning the existence of a Soviet civil defense program was largely resolved when, in 1962, U.S. military attaches and newsmen visited the Permanent Civil Defense Exhibit in Moscow and learned how to identify the telltale external features of Soviet shelters, namely their emergency exits, which are normally located at some distance from the building housing the shelter. Commenting on his visit to this exhibit, *New York Times* correspondent Seymour Topping reported in March 1962:

> The above ground extensions of shelters *now identifiable* have been found to be numerous in Moscow. Travelers have seen them in other Soviet cities too. . . . These installations can be seen in the courtyards at various distances from public buildings.[7]

Similiarly, the *Reuters* correspondent wrote that

> The exhibit showed that in a construction program *after* the war an *extensive* system of shelters in basements of office and apartment buildings was laid out.[8]

At the same exhibit, the correspondents learned to recognize the concealed blast doors in the subways, being shown a Soviet film which revealed how "steel doors would be lifted into place by hydraulic jacks to seal off arched entrances to the platforms."[9] Unfortunately, with the rotation of U.S. Embassy personnel and newsmen, the knowledge of how to recognize Soviet shelters was subsequently lost by Americans stationed in Moscow.

[5]Gouré, *Civil Defense in the Soviet Union* (Berkeley: University of California Press 1962), pp. 79-110.

[6]*Ibid.* See also Gouré, Testimony before Subcommittee No. 3 of the Armed Services Committee of the House of Representatives, June 17, 1963.

[7]*The New York Times*, March 23, 1962. [Emphasis added.]

[8]*Washington Post*, March 25, 1962. [Emphasis added.]

[9]*The New York Times*, March 23, 1962.

(i.e., with a compression ratio of 5,680 psi to 7,100 psi).[33] Hasty blast shelters are built primarily of reinforced concrete blocks, 2-3 feet thick, and 4-5 feet long, or concrete plates or panels up to 15 centimeters thick.

Depending on the purpose, the walls of detached and basement shelters are from 0.5 to 1.2 meters thick, and more in the case of special shelters. The roofs of basement shelters are designed to be able to bear the weight of the collapsed building above, most often being made of either prefabricated reinforced plates or cast reinforced concrete, 12 centimeters to 50 centimeters thick. In shelters 12 or more meters wide, the roof will usually be supported by pillars of reinforced concrete every six meters. In some cases, a layer of sand is placed between two layers of reinforced concrete plates. In the case of detached shelters, the roof plates will be covered by some three feet of earth.

Considerable attention is paid to the planning and design of hasty blast shelters, making use of various precast reinforced concrete structural components, such as pipes with a diameter of 1.5-2 meters, as well as reinforced concrete blocks 2-3 feet thick and plates or steel plates.[57] Normally, such shelters are built in a trench with a right angle or straight entrance and blast doors, and the concrete structure is then covered with 2-4 feet of earth. As was noted, such shelters are estimated to be able to withstand from 14.2 to 46.8 psi overpressure.

The wide variety of fallout shelters is designed primarily to provide effective protection against radiation, rather than blast overpressure. Basements in one-story houses or semibasements can be adapted by bricking in the windows and banking earth against the walls, as well as by placing 1-2 feet of earth on the floor above and reinforcing the ceiling with several upright beams. This is said to increase the attenuation coefficient by 300.[58] For dugouts and covered trenches, use can be made of round timber, boards, bricks, sheet metal, fascines, and so on, covered with 2-3 feet of earth. The degree of radiation attenuation will vary (between 10 and 550), depending on whether the shelter has straight or right angle entrances, and whether 1, 2 or 3 feet of earth is used as cover. According to Soviet publications, such a shelter with a

[57]Ostroukh, *Stroitel'stvo*, p. 4; also, "From Pre-fabricated Parts," *Voennye Znaniia*, No. 8, August 1972, pp. 24-26; and "Where There Is . . .," *Voennye Znaniia*, No. 1, January 1974, p. 24; *Voennye Znaniia*, No. 5, May 1975, p. 39; Iakubovskii, *Grazhdanskaia Oborona*, p. 30.

[58]Akimov and Il'in, *Grazhdanskaia Oborona na Obektakh*, p. 174.

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1949 RDS-1 nuclear test target array layout model

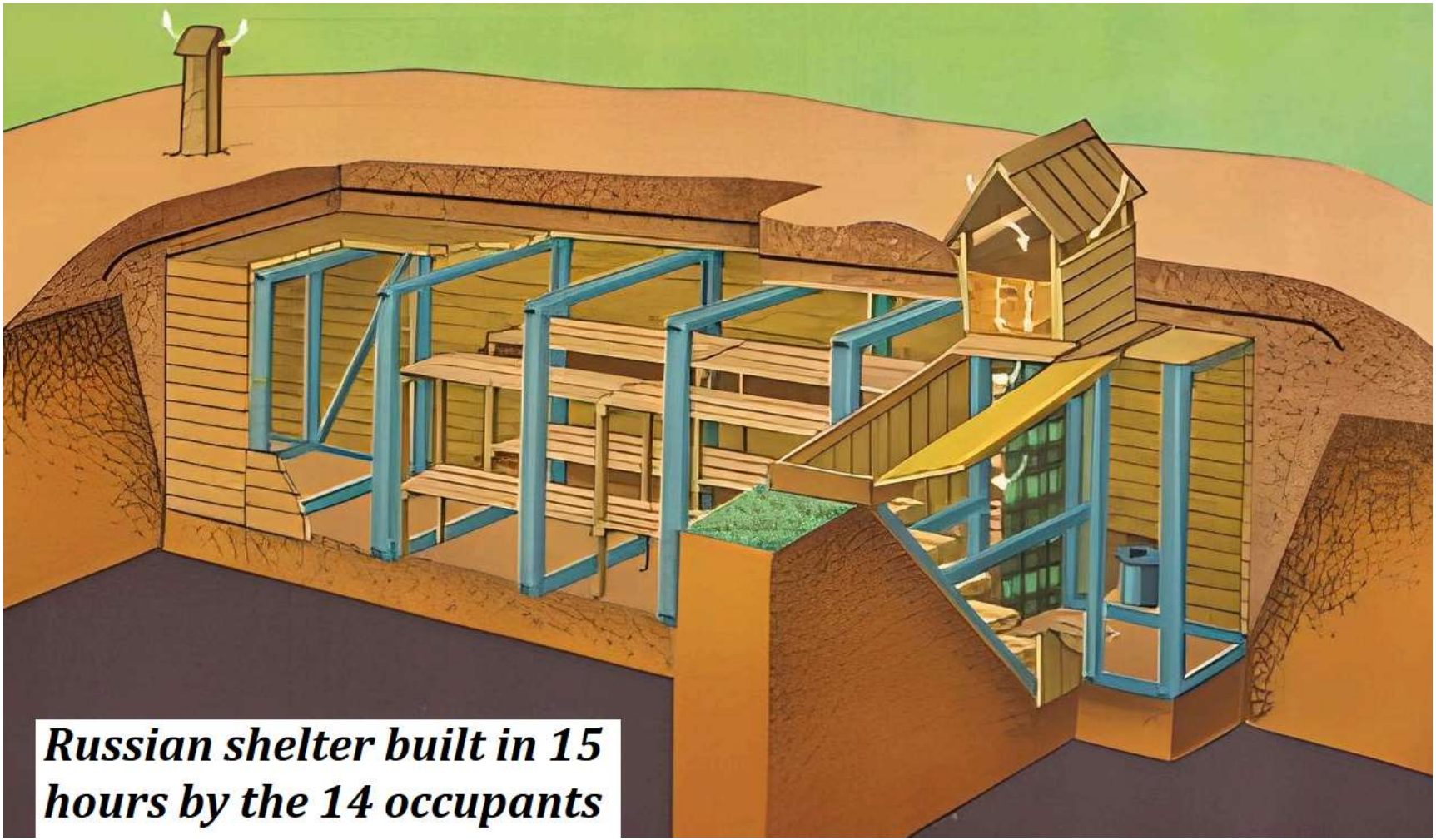


(Semi-buried nuclear shelter for areas with a high groundwater table)

В местах с высоким уровнем грунтовых вод противорадиационные укрытия делаются полузаглубленными.

В слабых грунтах проще построить укрытие безврубочной конструкции: между стеной котлована и верхней и нижней распорными рамами устанавливаются стойки, на которые укладываются бревна перекрытия. Верхняя рама подвешивается к ним.

Двадцать человек могут построить для себя такое укрытие за 6—7 часов. Для этого надо иметь 6 м³ круглого леса, 30 кг тонкой проволоки, ткань для занавеса на входе и несколько досок. Места для укрываемых можно оборудовать из жердей.


Russian shelter built in 15 hours by the 14 occupants

ГРАЖДАНСКАЯ ОБОРОНА СССР

ПРОТИВОРАДИАЦИОННЫЕ УКРЫТИЯ ИЗ ЛЕСОМАТЕРИАЛОВ

ТАКИЕ УКРЫТИЯ МОГУТ ПОЛУЧИТЬ НАИБОЛЬШЕЕ РАСПРОСТРАНЕНИЕ. ТАК КАК ДЛЯ ИХ СТРОИТЕЛЬСТВА ИСПОЛЬЗУЕТСЯ ШИРОКОДОСТУПНЫЙ МАТЕРИАЛ—НЕОБРАБОТАННЫЕ БРЕВНА, ЖЕРДИ, А ТАКЖЕ КОНСТРУКЦИИ СТАРЫХ ДЕРЕВЯННЫХ СТРОЕНИЙ.

ЭТИ СООРУЖЕНИЯ ОСЛАБЛЯЮТ ДЕЙСТВИЕ РАДИАЦИИ В 200—400 РАЗ В ЗАВИСИМОСТИ ОТ ЗАГЛУБЛЕНИЯ И ТОЛЩИНЫ ГРУНТОВОЙ ОБСЫПКИ.

Civil Defense of the USSR

ANTI-RADIATION SHELTERS MADE OF TIMBER

SUCH SHELTERS CAN BECOME THE MOST WIDESPREAD, SINCE WIDELY AVAILABLE MATERIAL IS USED FOR THEIR CONSTRUCTION-UNTREATED LOGS, POLES, AS WELL AS STRUCTURES OF OLD WOODEN BUILDINGS.

THESE STRUCTURES WEAKEN THE EFFECT OF RADIATION BY 200 TO 400 TIMES, DEPENDING ON THE DEPTH AND THICKNESS OF THE SOIL DUSTING.

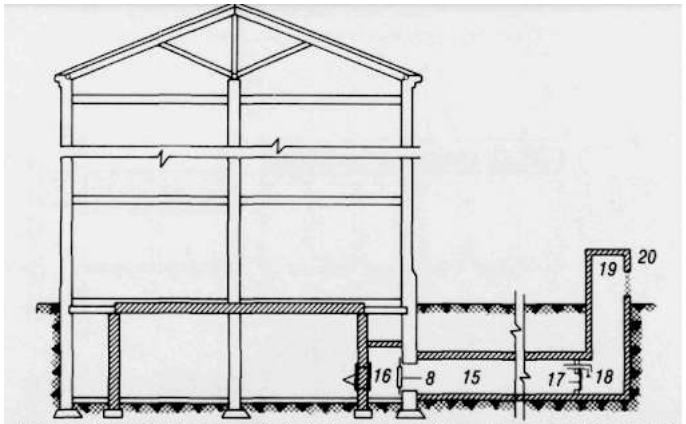


1972 Anti-Radiation shelters made of timber poster: protection factors of 200-400 (50-70cm earth cover)

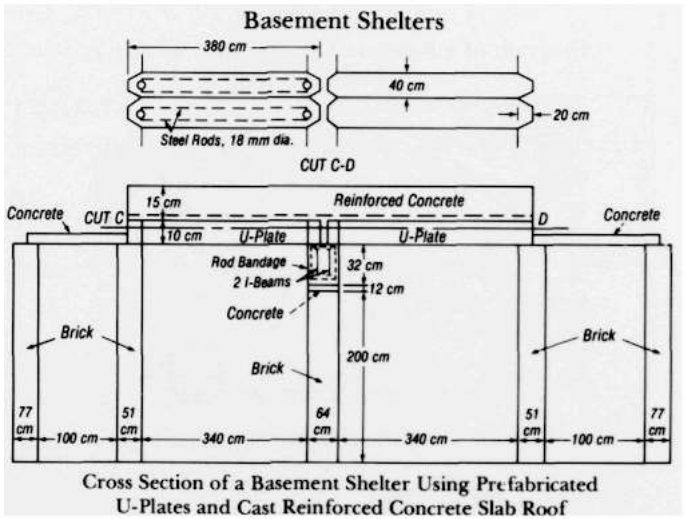
Rung 1. Ostensible Crisis
Rung 2. Political, Economic, and Diplomatic Gestures
Rung 3. Solemn and Formal Declarations
Rung 4. Hardening of Positions—Confrontation of Wills
Rung 5. Show of Force
Rung 6. Significant Mobilization
Rung 7. "Legal" Harassment—Retortions
Rung 8. Harassing Acts of Violence
Rung 9. Dramatic Military Confrontations
Rung 10. Provocative Breaking Off of Diplomatic Relations
Rung 11. Super-Ready Status
Rung 12. Large Conventional War (or Actions)
Rung 13. Large Compound Escalation
Rung 14. Declaration of Limited Conventional War
Rung 15. Barely Nuclear War
Rung 16. Nuclear "Ultimatums"
Rung 17. Limited Evacuation (Approximately 20 per cent)
Rung 18. Spectacular Show or Demonstration of Force
Rung 19. "Justifiable" Counterforce Attacks
Rung 20. "Peaceful" World-Wide Embargo or Blockade
Rung 21. Local Nuclear War—Exemplary
Rung 22. Declaration of Limited Nuclear War
Rung 23. Local Nuclear War—Military
Rung 24. Unusual, Provocative, and Significant Countermeasures
Rung 25. Evacuation (Approximately 70 per cent)
Rung 26. Demonstration Attack on Zone of Interior
Rung 27. Exemplary Attack on Military
Rung 28. Exemplary Attacks Against Property
Rung 29. Exemplary Attacks on Population
Rung 30. Complete Evacuation (Approximately 95 per cent)
Rung 31. Reciprocal Reprisals
Rung 32. Formal Declaration of "General" War
Rung 33. Slow-Motion Counter-"Property" War
Rung 34. Slow-Motion Counterforce War
Rung 35. Constrained Force-Reduction Salvo

Rung 36. Constrained Disarming Attack
Rung 37. Counterforce-with-Avoidance Attack
Rung 38. Unmodified Counterforce Attack
Rung 39. Slow-Motion Countercity War
Rung 40. Countervalue Salvo
Rung 41. Augmented Disarming Attack
Rung 42. Civilian Devastation Attack
Rung 43. Some Other Kinds of Controlled General War
Rung 44. Spasm or Insensate War

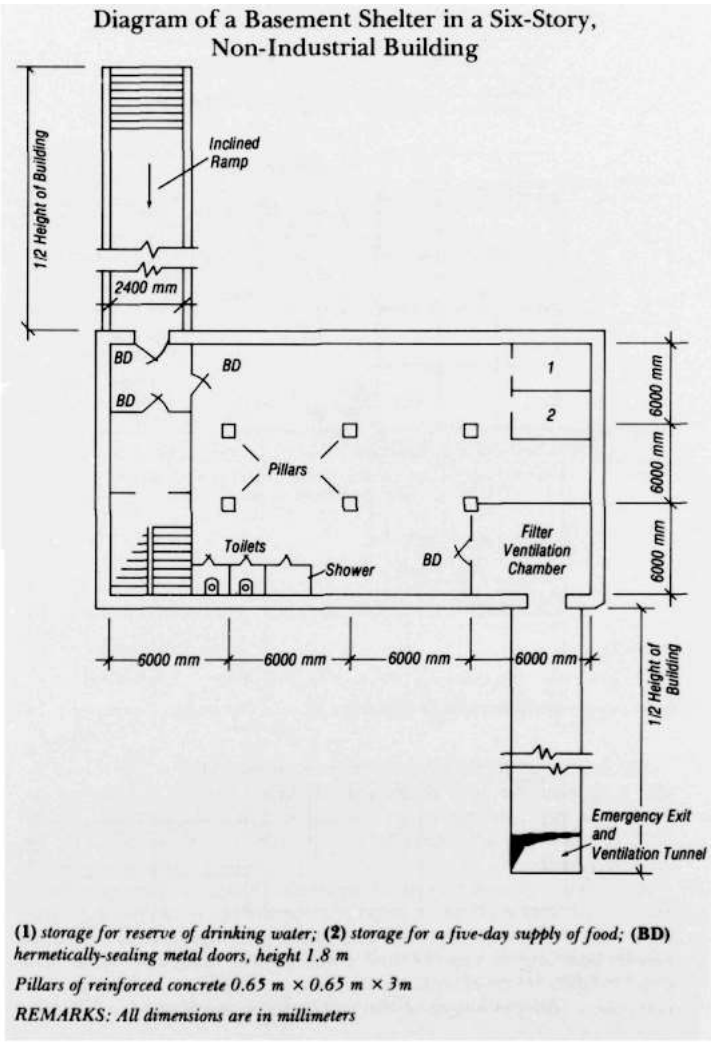




Basement Shelter in the center of a building basement: **(1)** *compartments;* **(2)** *exits;* **(3)** *and* **(4)** *protective airtight doors;* **(5)** *louvered wooden door;* **(6)** *vestibule;* **(7)** *protective airtight shutters;* **(8)** *shutter with dust filter;* **(9)** *filter-ventilation chamber;* **(10)** *lavatories;* **(11)** *exhaust duct;* **(12)** *sealing safety valve;* **(13)** *basic air intake duct;* **(14)** *pressurized pipes;* **(15)** *emergency exit;* **(16)** *adjoining chamber;* **(17)** *airtight safety shutter in emergency exit;* **(18)** *floating cutoff valve;* **(19)** *vent cap of the emergency exit;* **(20)** *wooden louver grating.*



Cross Section of a Basement Shelter Using Prefabricated U-Plates and Cast Reinforced Concrete Slab Roof



(1) *storage for reserve of drinking water;* **(2)** *storage for a five-day supply of food;* **(BD)** *hermetically-sealing metal doors, height 1.8 m*

Pillars of reinforced concrete 0.65 m × 0.65 m × 3 m

REMARKS: All dimensions are in millimeters



Dr Leon Goure, Shelters in Soviet War Survival Strategy, ADA



RUSSIAN 3.5 KT UNDERWATER TEST IN 1955



RUSSIAN 6 KT UNDERW


Joe-4 (RDS-6) 400 kt Teller "alarm clock"-design H-bomb
photo taken 15 seconds after detonation 12 August 1953


28 KT RDS-4 AIR BURST AT 600 M ALTITUDE, 1953



Litvinov BV Atomic energy not only for military purposes: monograph / BV Litvinov; Russian Academy of Sciences, Ural branch. - Yekaterinburg, 2004. - 560 pp

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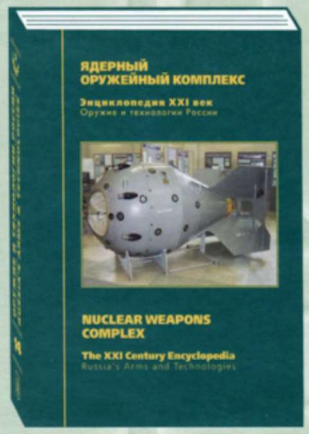
Издательский дом «Оружие и технологии»

Оружие и технологии России
Энциклопедия. XXI век



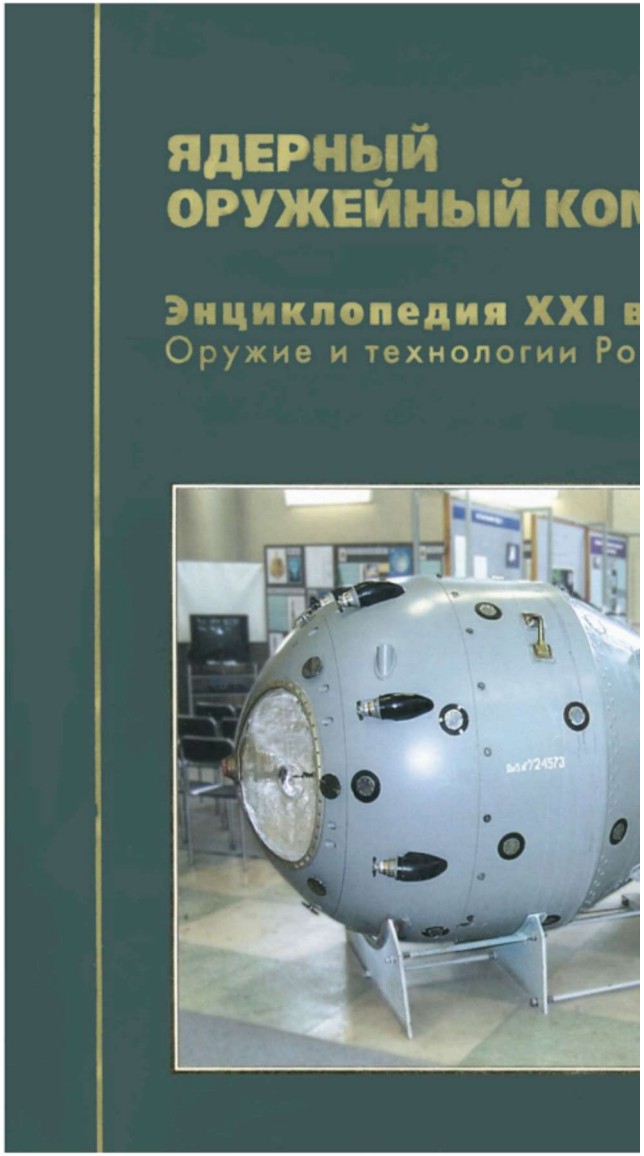
Том 14. Ядерный оружейный комплекс

В книге представлены достижения самой наукоемкой отрасли России – разработка и эксплуатация ядерных боеприпасов, их утилизация, атомная энергетика. Особое внимание уделено ядерной и радиационной безопасности, экологии и безопасности хранения ядерных материалов.



Volume 14. Nuclear Weapons Complex

This volume is dedicated to Russia's most sophisticated industry – development, operation and utilization of nuclear munitions,



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25


26



РФЯЦ ВНИИЭФ

Хроника основных ра
и достижений РФЯЦ-

Milestone

1946 – 9 апреля вышло правительственное постановление о создании первого в стране специализированного научно-исследовательского и производственного центра КБ-11 для конструирования и изготовления «реактивных двигателей С» (РДС).

1948–1954 – предложен, разработан и реализован новый принцип нейтронного инициирования ядерных зарядов, что позволило существенно повысить эффективность их действия.

1949 – построена установка ФКБН (физический котел на быстрых нейтронах), на которой были экспериментально определены критические массы плутония-239 и урана-235 для первых атомных зарядов РДС-1 и РДС-2. 29 августа успешно испытана первая советская атомная бомба РДС-1 на Семипалатинском полигоне.

1951 – проведено первое воздушное испытание атомной бомбы с качественно новой системой обеспечения сферического обжатия. Нововведение позволило уменьшить массу изделия по сравнению с РДС-1 и увеличить его мощность более чем в два раза.

1953 – 12 августа испытан заряд для первой термоядерной транспортабельной авиабомбы.

1955 – 22 ноября испытан термоядерный заряд с принципиально новой физической схемой атомного обжатия.

1957 – обеспечен прорыв в повышении удельных характеристик ядерных зарядов.

1946 –
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(RDS).
1948–
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(RDS-1)
Site on
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Образцы ядерного оружия (экспонаты музея РФЯЦ-ВНИИЭФ)

Specimens of Nuclear Weapons (Exhibits of the VNIIEF Museum)

Первая атомная бомба СССР

Ядерный заряд испытан 29 августа 1949 года на Семипалатинском полигоне. Мощность заряда до 20 кт тротилового эквивалента.

USSR's first A-bomb

The nuclear charge was tested at the Semipalatinsk Test Site on August 29, 1949. Yield: up to 20 kt.

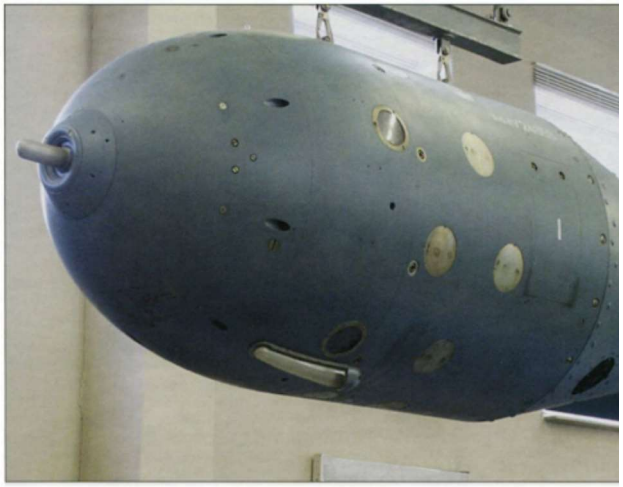


Первая тактическая серийная атомная бомба

Испытана в 1953 году на Семипалатинском полигоне. Мощность заряда до 30 кт тротилового эквивалента. На вооружении с 1954 до 1965 года.

First serial tactical A-b

Tested at the 30 kt. In service



Первая водородная бомба

Ядерный заряд испытан 12 августа 1953 года на Семипалатинском полигоне. Мощность заряда до 400 кт тротилового эквивалента.

First H-bor

The nuclear c Site on August 1



Первая ядерная боевая часть для тактической ракеты

Мощность заряда до 10 кт тротилового эквивалента. Дальность полета до 32 км. На вооружении с 1960 до 1967 года.

First nuclear warhead for tactical missile

Yield: up to 10 kt. Range: up to 32 km. In service in 1960–1967.



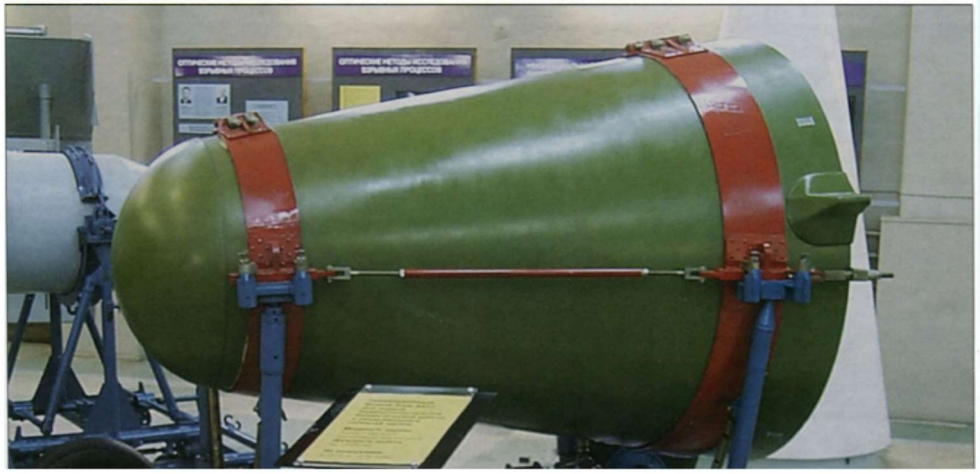


Термоядерный боевой блок для первой межконтинентальной баллистической ракеты с разделяющейся головной частью

Мощность заряда более 2 Мт тротилового эквивалента. Дальность полета до 12 000 км. На вооружении с 1970 до 1979 года.

Thermonuclear combat unit for the first intercontinental ballistic missile with a multiple reentry warhead

Yield: over 2 Mt. Range: up to 12,000 km. In service in 1970–1979.



Первая ядерная боевая часть для баллистической ракеты среднего радиуса действия

Мощность заряда до 40 кт тротилового эквивалента. Дальность полета до 1200 км. На вооружении с 1955 до 1960 года.

First nuclea for medium ballistic mis

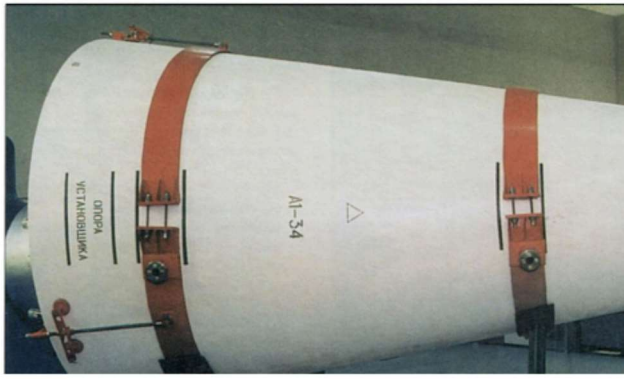


Первая термоядерная боевая часть для межконтинентальной баллистической ракеты

Мощность заряда до 3 Мт тротилового эквивалента. Дальность полета до 8500 км. На вооружении с 1960 до 1966 года.

First therm for interco ballistic mi

Yield: up to 3 1960–1966.



Самая мощная в мире экспериментальная водородная бомба

Испытана 30 октября 1961 года на полигоне «Новая Земля» на половинную мощность. Расчетная мощность более 100 Мт тротилового эквивалента.

World's most powerful experimental H-bomb

Tested to half-yield at the Novaya Zemlya Test Site on October 30, 1961. Estimated yield: over 100 Mt.



Термоядерные боевые части для оперативно-тактических ракет

Thermonuclear warheads for operational tactical missiles

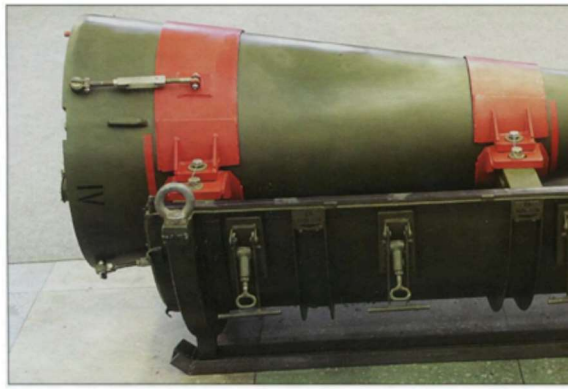




1 – Первая термоядерная боевая часть для оперативно-тактической ракеты. Мощность заряда до 300 кт тротилового эквивалента. Дальность полета до 900 км. На

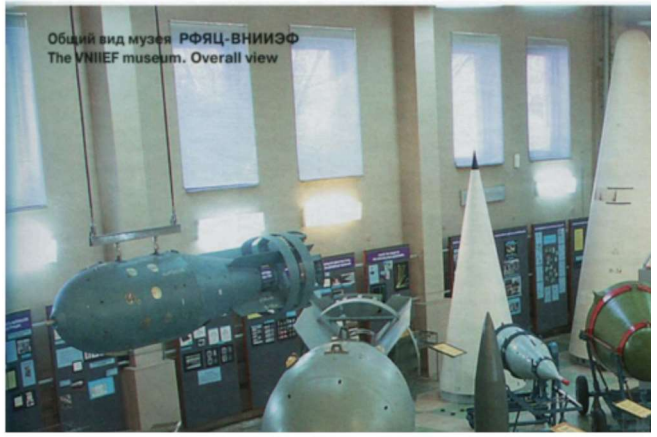
Термоядерный боевой блок для ракеты среднего радиуса действия с разделяющейся головной частью

Thermonuc for mediun with a mult



Суммарная мощность заряда до 400 кт тротилового эквивалента. Дальность полета до 5000 км. На вооружении с 1976 до 1991 года. Снята с вооружения по Договору о РСМД.

Total yield: up 1976–1991. De



Общий вид музея РФЯЦ-ВНИИЭФ
The VNIIEF museum. Overall view

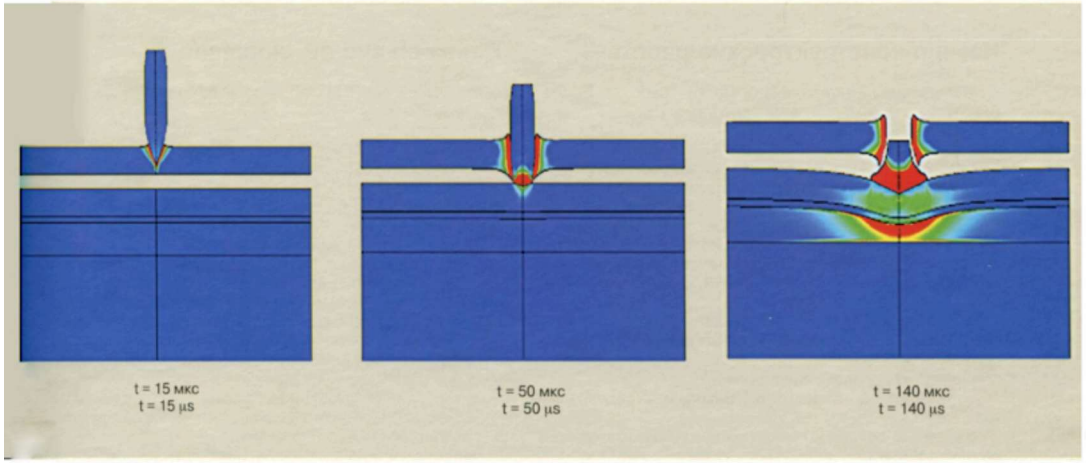
щих необходимую для расчетов информацию о свойствах веществ, отработаны новые технологии проведения расчетно-теоретических работ по основным направлениям деятельности.

Серьезные успехи достигнуты специалистами института в следующих областях:

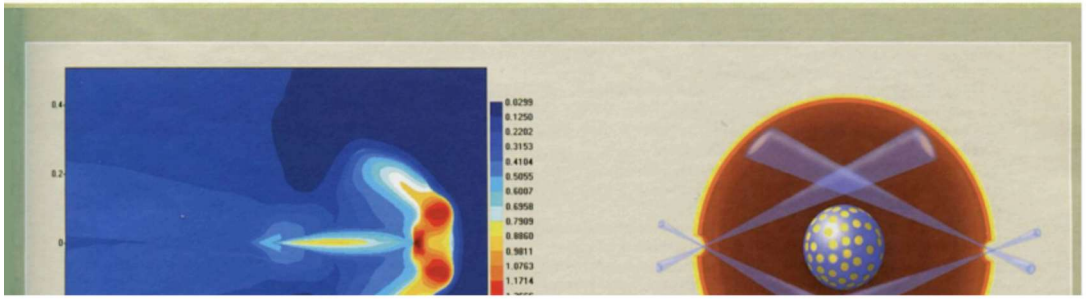
- моделирование на ЭВМ многомерных задач физики ядерного взрыва, лазерной физики в полной замкнутой постановке с одновременным учетом всех ведущих физических процессов;

The VNIIEF specialists have succeeded in the following areas:

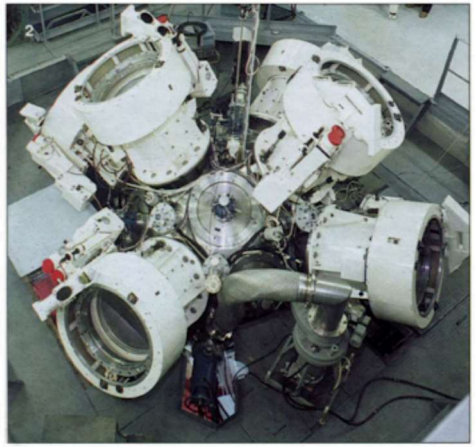
- computer-aided simulation of multivariative nuclear explosion and laser physics problems in a complete closed statement with all leading physical processes taken into account;
- studies into characteristics of turbulence; it has been for the first time that results of a range of experimental measurements were interpreted through direct numerical simulation of gravitational turbulent mixing using multiprocessor computers;



Процесс деформации материала при внешнем воздействии
A material deformation process at external effects

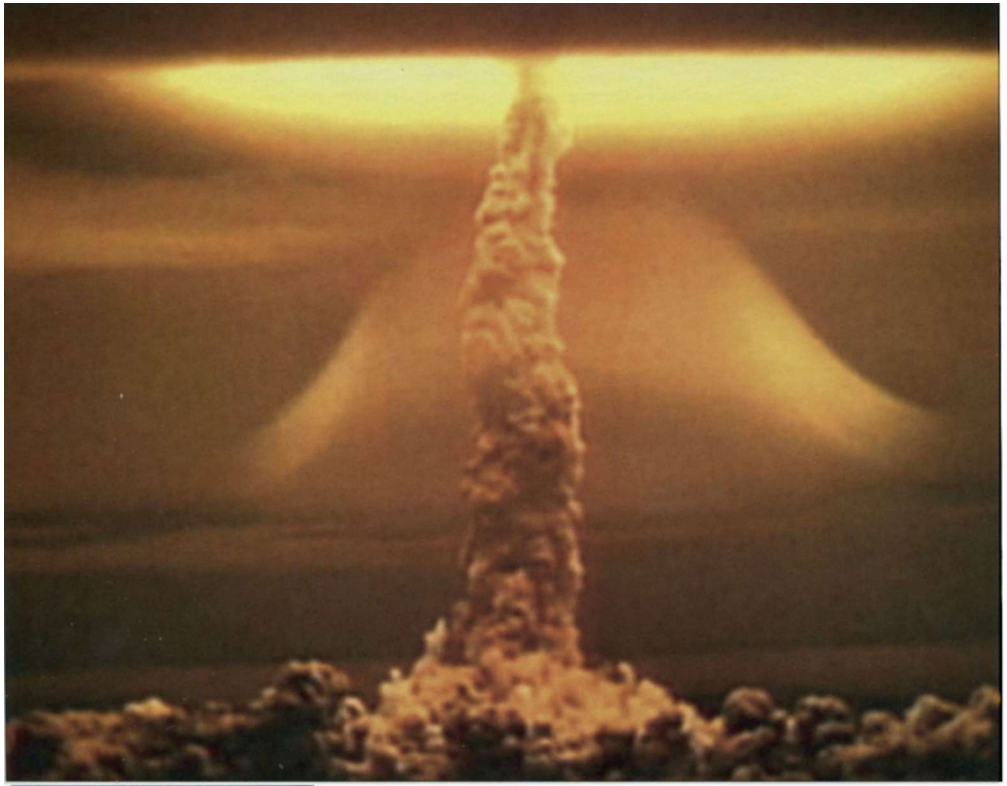




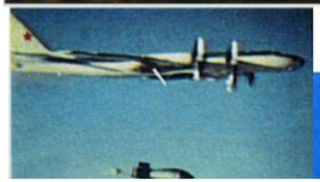


Здание (1) и сферическая камера взаимодействия (2) установки «Искра-5»
The «Iskra-5» building (1) and spherical interaction chamber (2)

(уровень неоднородности < 3 %) симметрию рентгеновского поля на поверхности сферической микромишени и осуществить уникальные исследования сжатия оболочек с DT-топливом в симметричных условиях. Проведены экспериментальные исследования влияния асимметрии оболочки и рентгеновского поля на эффективность работы термоядерной мишени, результаты которых проанализированы с помощью двумер-



Взрыв водородной бомбы РДС-37 22 ноября 1955 года на Семипалатинском полигоне
Explosion of the RDS-37 H-bomb at the Semipalatinsk test site on November 22, 1955





In the morning of September 21, 1955, the USSR's first underwater nuclear explosion was conducted in the Chernaya Bay by detonation of the T-5 torpedo warhead at a depth of 12 m. Its yield was 3.5 kt. Following automatic generation of the signal to

71-й полигон ВВС и войсковые учения на Тоцком полигоне с применением атомной бомбы

В 1950–1951 годах шла подготовка к первому испытанию в СССР атомной бомбы РДС-3 со сбросом ее с самолета в режиме боевого бомбометания. Такое первое испытание состоялось 18 октября 1951 года на Семипалатинском полигоне: авиабомба мощностью 42 кт была взорвана над его опытным полем на высоте 380 м. Так впервые в СССР был произведен воздушный ЯВ. И этот результат, по существу, явился основой для принятия решений об оснащении советских ВВС ядерным оружием: было организовано ядерное производство авиабомб РДС-4 и их носителей – самолетов Ту-4.

В государственной системе организации и проведения ЯИ большую роль сыграл 71-й полигон ВВС, расположенный в Крыму (в районе пос. Багерово), который был создан в августе 1947 года. Его личный состав в 1949–1962 годах участвовал в 178 ядерных испытаниях: на СИП – в 94 ЯИ, на СИПНЗ – в 83 и еще в одном – на Тоцком полигоне, в ходе войскового учения с применением атомной бомбы в режиме бомбометания с большой высоты.

На этом полигоне ВВС подвергались также соответствующим испытаниям и самолеты – носители атомных бомб, и самолеты-лаборатории: Ту-16, Ил-28 и Су-7б (на СИП); Ту-16, Ту-35 и 3М (на СИПНЗ); отрабатывался Бе-12, который проходил испытания как носитель противолодочного ядерного оружия без привлечения к натурным ЯИ.

Следует отметить, что результаты исследований воздействия ЯВ привели к выводу о возможности эффективного действия Вооруженных Сил на поле боя в условиях применения противником ядерного оружия. В этом контексте следует рассматривать и войсковые учения, проводившиеся на Тоцком артиллерийском полигоне в Оренбургской области в сентябре 1954 года, в ходе которых был произведен воздушный ЯВ мощностью 40 кт на высоте 350 м. Такая высота подрыва изделия РДС-3 обеспечивала незначительное радиоактивное загрязне-

71st Air Forc and military at the Totsk in the A-bom

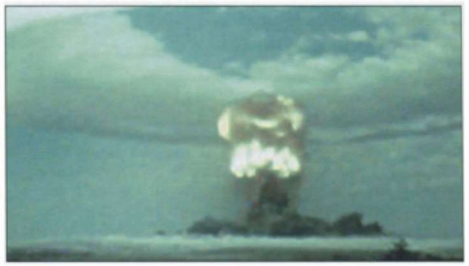
In 1950-1951, ef prepare for the cou to be dropped from tions. This test wa Semipalatinsk test the altitude of 380 the first Soviet air n essentially the basi Force with nuclear the manufacture of aircraft (Tu-4).

Within the govern mance system, this test range near Bag set up in August 19 involved in 178 Semipalatinsk, 83 undertaken at the involving the use o conditions.

This Air Force te tests of nuclear bo ing Tu-16, Il-28 and 35 and 3M (at Nov the Be-12 aircraft weapons with no fu

It is worth noting nuclear explosions could act effective weapon by the en address the milita range in the Orenb nuclear explosion m. Such altitude radioactive contar





Атомную бомбу сбросил на обозначенную цель на Тоцком полигоне экипаж подполковника В.Я. Кутырчева, который уже имел опыт пяти летных испытаний атомной бомбы на Семипалатинском полигоне. Произошло это 14 сентября 1954 года в 9 ч 34 мин.

В подготовке и в ходе учения приняли активное участие руководство Министерства среднего машиностроения СССР во главе с В.А. Малышевым, а также ведущие ученые – создатели ядерного оружия И.В. Курчатов, К.И. Щелкин и руководство всех родов войск и сил флота, командование всех групп войск, военных округов, округов противовоздушной обороны, флотов и флотилий. На учение были приглашены все министры обороны дружественных в то время нам стран. Войсковое учение под кодом «Снежок» в штабных документах называлось: «Прорыв подготовленной тактической обороны противника с применением атомного оружия».

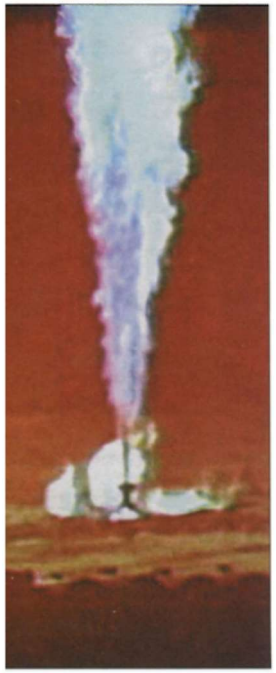
17 сентября ТАСС сообщило: «В соответствии с планом научно-исследовательских и экспериментальных работ в последние дни в Советском Союзе было проведено испытание одного из видов атомного оружия. Целью испытания было изучение действий атомного взрыва. При испы-

epicenter and in the radioactive cloud pattern. The exercise involved some 45,000 troops and this was the USSR's only large-scale military exercise in conditions of a full-scale nuclear explosion. This unique exercise was commanded by Marshal of the Soviet Union G.K. Zhukov.

The A-bomb was dropped onto the specified target at the Toskoye range by the crew led by Lieutenant-Colonel V.Ya. Kutyrchev who had an earlier experience of five A-bomb flight tests at the Semipalatinsk test site. The event took place at 9.34 a.m. September 14, 1954.

The work to prepare and conduct the exercise involved the leaders of the Ministry of Medium-Machine Building headed by V.A. Malyshev, leading nuclear weapons scientists including I.V. Kurchatov and K.I. Shchelkin, leaders of all arms and naval forces, and commanders of all groups of troops, military districts, air defense districts, fleets and flotillas. The exercise was attended by all defense ministers of the USSR's friendly countries at the time. Codenamed «Snezhok», it was referred to in staff documents as the «Break through the enemy's prepared tactical defense using nuclear weapons».

A TASS report of September 17 read: «In keeping with the plan of research and experimental work, the Soviet Union has recently conducted a test of one of the nuclear weapon types. The purpose of the test was to study the effects of a nuclear explosion. Valuable results have been obtained during the test that will help Soviet scientists and engineers with successful





международным наблюдением и посредством соответствующих международных процедур потенциальные блага от любого мирного применения ядерных взрывов были доступны государствам – участникам настоящего

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were dev



Импульсные магнитогидродинамические генераторы (МГД-генераторы)

Предназначены для использования в качестве первичного мощного (десятки и сотни мегаватт) источника электрической энергии кратковременного действия (~10 с) в системах автономного электропитания различных объектов. В МГД-генераторах происходит прямое (непосредственное) преобразование тепловой энергии в электрическую, поэтому они обладают рядом уникальных свойств.

Благодаря этим свойствам МГД-генераторы импульсного и кратковременного (минуты) действия могут обеспечить такие тактико-технические характеристики, которые недоступны другим, прежде всего традиционным, источникам электрической энергии.

Преимущества плазменных МГД-генераторов по сравнению с другими первичными источниками электрической энергии начинают проявляться с мультимегаваттного уровня мощностей.

В отечественных импульсных МГД-генераторах в качестве источника тепловой энергии и рабочего тела используются специальные твердые (пороховые) плазмообразующие топлива (ТПТ), обеспечивающие температуру продуктов сгорания в генераторе плазмы до 4400 К при давлениях 30–100 атм.

При создании различных штатных (натурных) МГД-установок на основе импульсных МГД-генераторов использовался блочный принцип. Всего было создано четыре базовых варианта импульсных МГД-генераторов на ТПТ: «Памир», «Урал», «Сахалин», «Союз».

Отечественные импульсные МГД-генераторы на твердом (пороховом) топливе начали создаваться кооперацией предприятий СССР примерно с 1970 года и выпускаются ОАО «НМЗ».

За период с 1971-го по 1993 год были разработаны такие импульсные МГД-установки, как «Памир», «Урал», «Прикаспий», «Хибины», «Союз», «Сахалин» и другие. Всего было изготовлено около 20 натурных импульсных

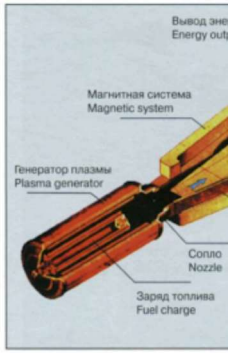


Схема импульсного МГД-генерато
Diagram of the pulse MHD-generato

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ЯБП для первой межконтинентальной
баллистической ракеты Р-7
NM for the first intercontinental
ballistic missile R-7

Разработка ядерных боеприпасов ВНИИА

Development of Nuclear Munitions in VNIIA

Разработкой ЯБП в нашей стране занимаются три организации: РФЯЦ-ВНИИЭФ, РФЯЦ-ВНИИТФ и ВНИИА.

Для того, чтобы была более понятна область деятельности ВНИИА, целесообразно привести обобщенную структуру ядерного боеприпаса.

Как видно из представленной структуры, любой ЯБП содержит четыре основных устройства:

- ядерный заряд (ЯЗ), содержащий взрывчатое вещество и ядерный материал, и обеспечивающий при ядерном взрыве основное энерговыделение боеприпаса за счет протекающих в нем ядерных реакций;
- систему электрического и нейтронного инициирования (система инициирования) ядерного заряда. В ее функции входит выработка высоковольтных электрических импульсов для подрыва химического взрывчатого вещества ядерного заряда, а также генерация нейтронного импульса в момент обжатия ядерного материала. Эта система является самой ответственной и самой сложной из неядерных компонентов ядерного боеприпаса;
- пусковую систему (совокупность исполнительных устройств), ответственную за запуск системы инициирования в нужный момент (например, на заданной высоте в атмосфере или на заданной глубине в водной среде);
- систему предохранения, в функции которой входит исключение ядерного взрыва во всех нештатных ситуациях, таких как отказы компонентов ЯБП, аварийные воздействия (пожар, удар, прострел и т. п.), несанкционированные (ошибочные или преднамеренные) действия обслуживающего персонала или злоумышленника.

Кроме того, в состав некоторых ЯБП входит автономный источник питания.

Указанные устройства размещаются в собственном

There are three Russian organizations responsible for development of nuclear munitions in the country: VNIIEF, VNIITF and VNIIA.

The diagram presented below shows the general structure of nuclear munition to illustrate more graphically what VNIIA is in charge of.

The diagram demonstrates that any nuclear munition contains four basic devices:

- a nuclear charge that contains the explosive and the nuclear material and accounts for most of the munition energy released in a nuclear explosion thanks to nuclear reactions within it;
- a system for electric and neutron initiation (initiation system) of the nuclear charge. Its functions include generation of high-voltage electric pulses to detonate the chemical explosive of the nuclear charge and generation of a neutron pulse at the time the nuclear material is compressed. This is the most responsible and most complicated system among non-nuclear components of the nuclear munition;
- a trigger system (a combination of actuators) responsible for triggering the initiation system at the required time (e.g. at the preset height in the atmosphere or at the preset depth in water);
- a safety system with the function of ruling out nuclear explosion in all emergencies, such as failures of NM components, emergency impacts (fire, shock, streaming, etc.) and unauthorized (erroneous or premeditated) actions of attending personnel or the intruder.

Besides, some nuclear munitions include an autonomous power supply source.

Each of the above devices has a body of its own or an individual compartment within the carrier.

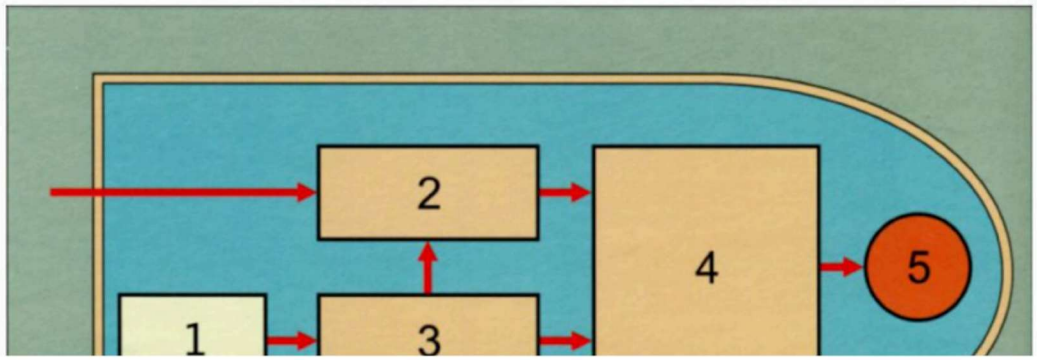
In accordance with the described nuclear munition struc-

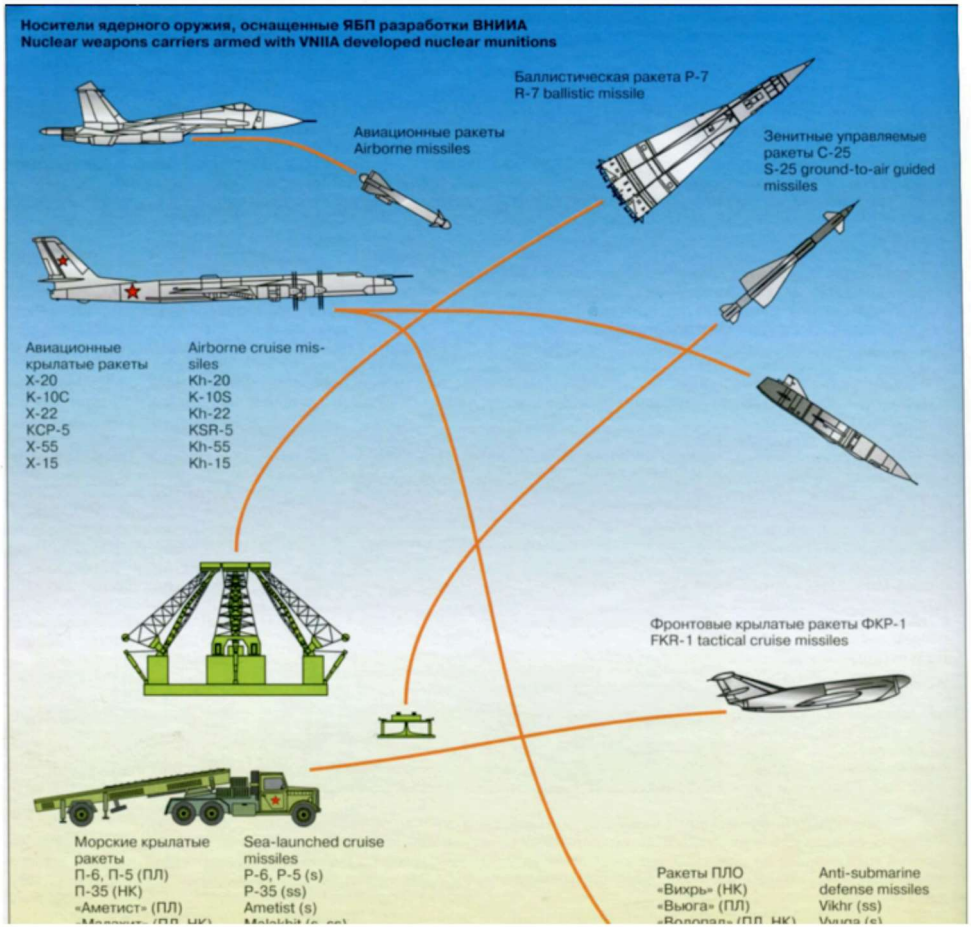
корпусе ЯБП или отсеке носителя.

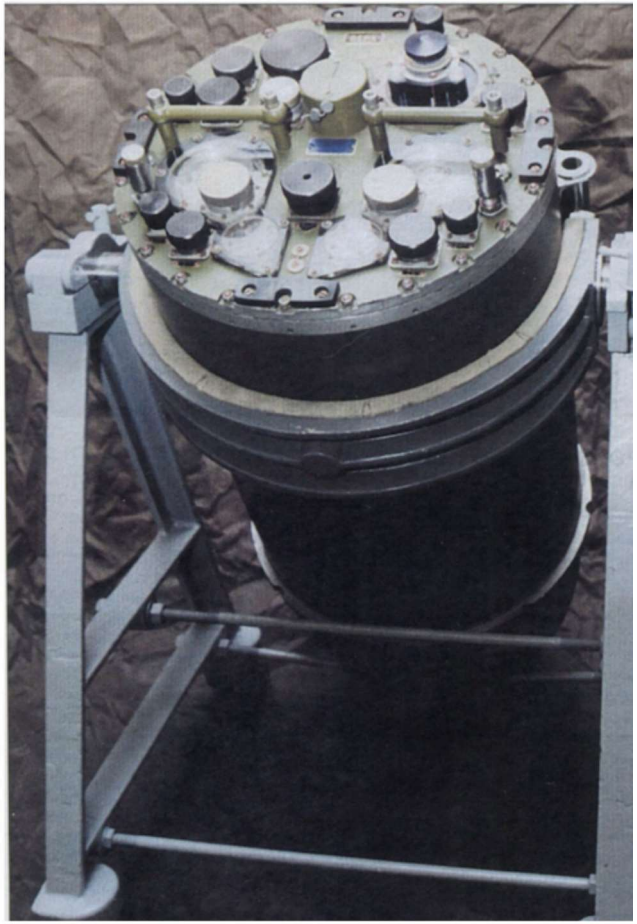
ture, VNIIA develops nuclear munitions as a whole, the safety

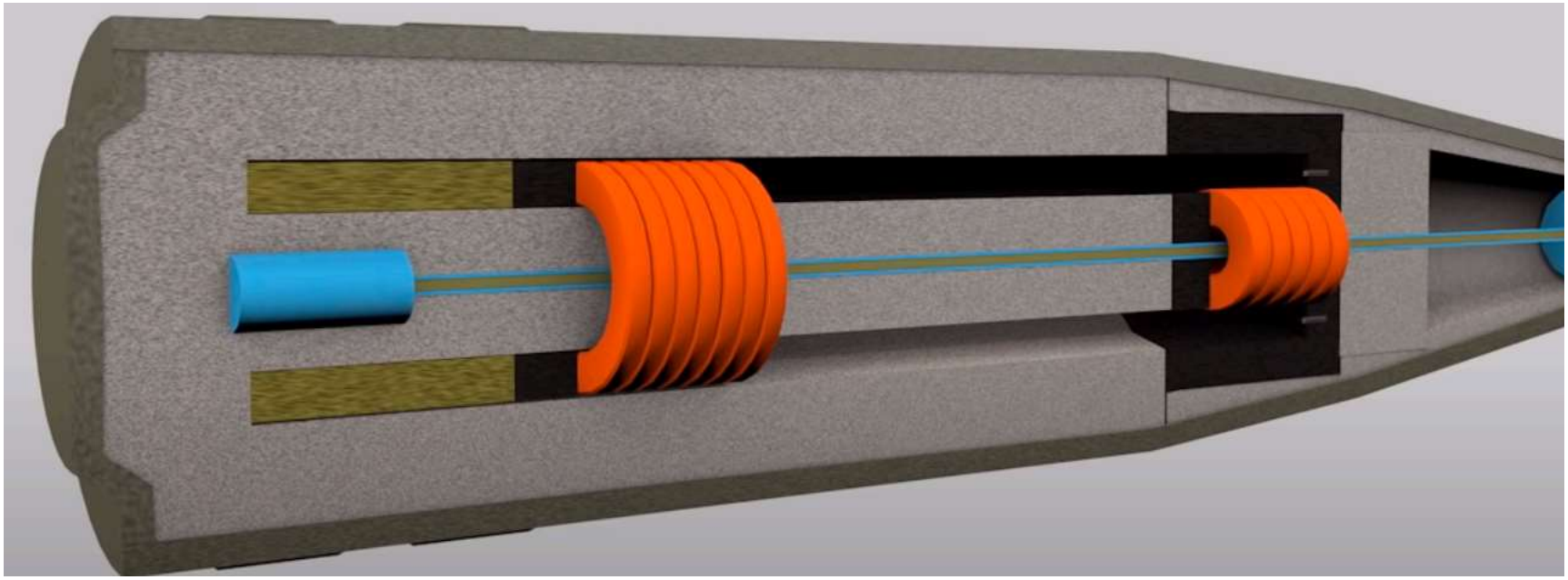
Структура ядерного боеприпаса
NM structure

1 – источник питания
2 – система пуска
3 – система предохранения
4 – система инициирования
5 – ядерный заряд
6 – корпус



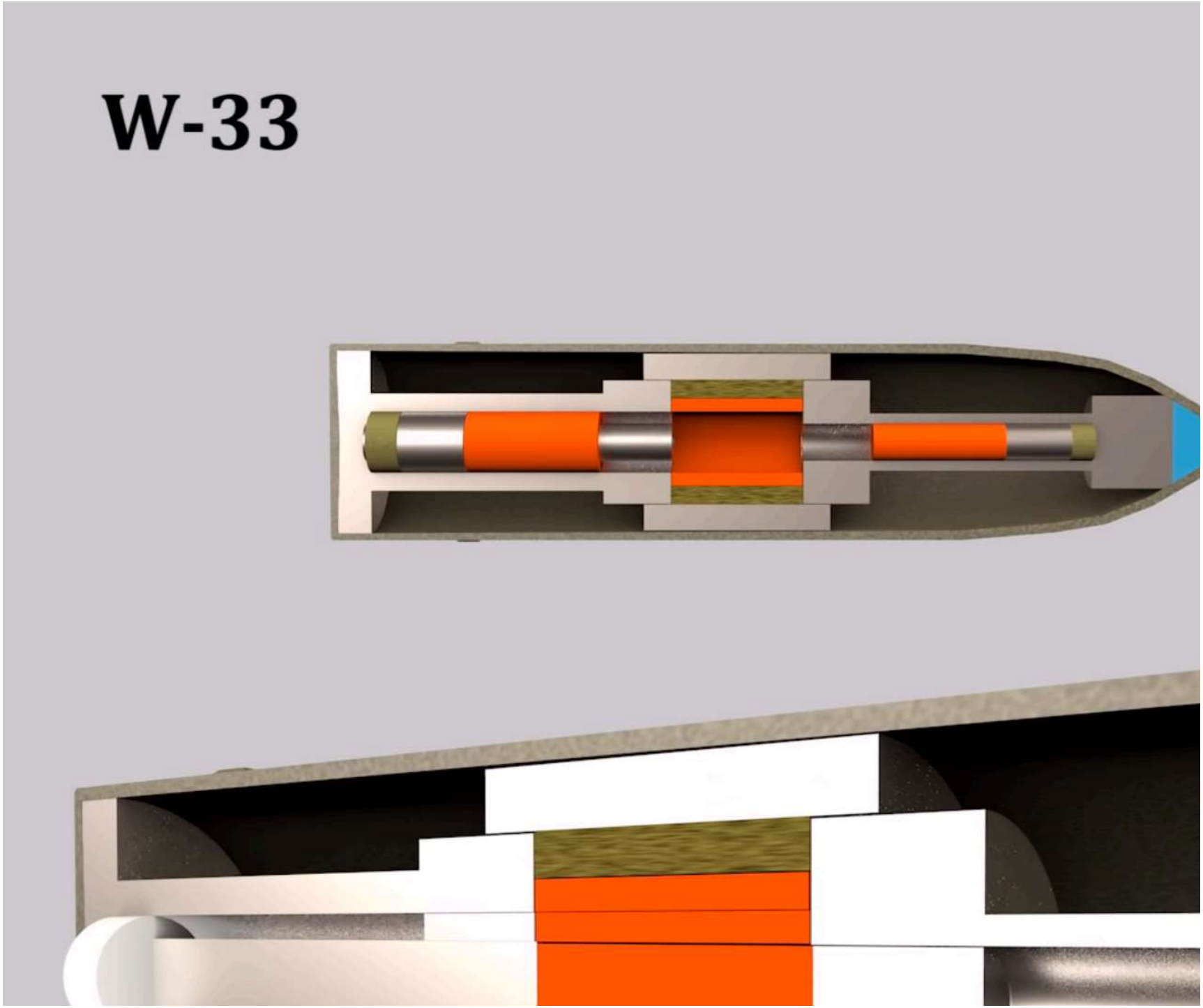

Носители ядерного оружия, оснащенные ЯБП разработки ВНИИА
Nuclear weapons carriers armed with VNIIA developed nuclear munitions
Баллистическая ракета Р-7
R-7 ballistic missile
Авиационные ракеты
Airborne missiles
Зенитные управляемые ракеты С-25
S-25 ground-to-air guided missiles
Авиационные крылатые ракеты
Х-20
К-10С
Х-22
КСР-5
Х-55
Х-15
Airborne cruise missiles
Kh-20
K-10S
Kh-22
KSR-5
Kh-55
Kh-15
Фронтовые крылатые ракеты ФКР-1
FKR-1 tactical cruise missiles
Морские крылатые ракеты
П-6, П-5 (ПЛ)
П-35 (НК)
«Аметист» (ПЛ)
Sea-launched cruise missiles
P-6, P-5 (s)
P-35 (ss)
Ametist (s)
Ракеты ПЛО
«Вихрь» (НК)
«Вьюга» (ПЛ)
Anti-submarine defense missiles
Vikhr (ss)

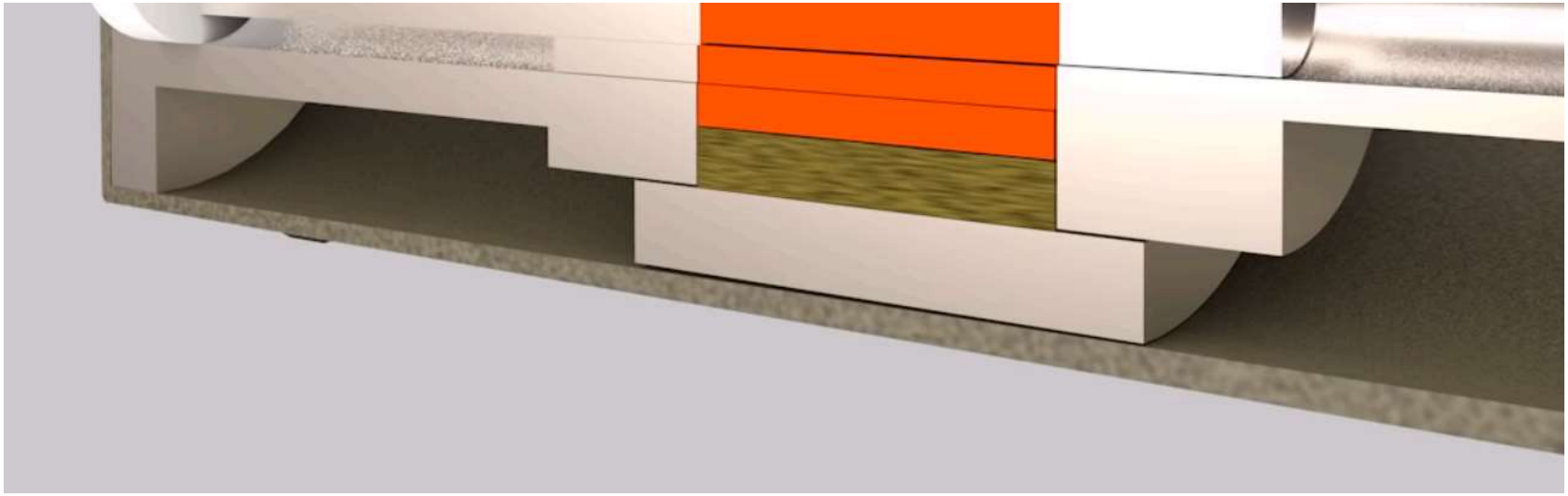


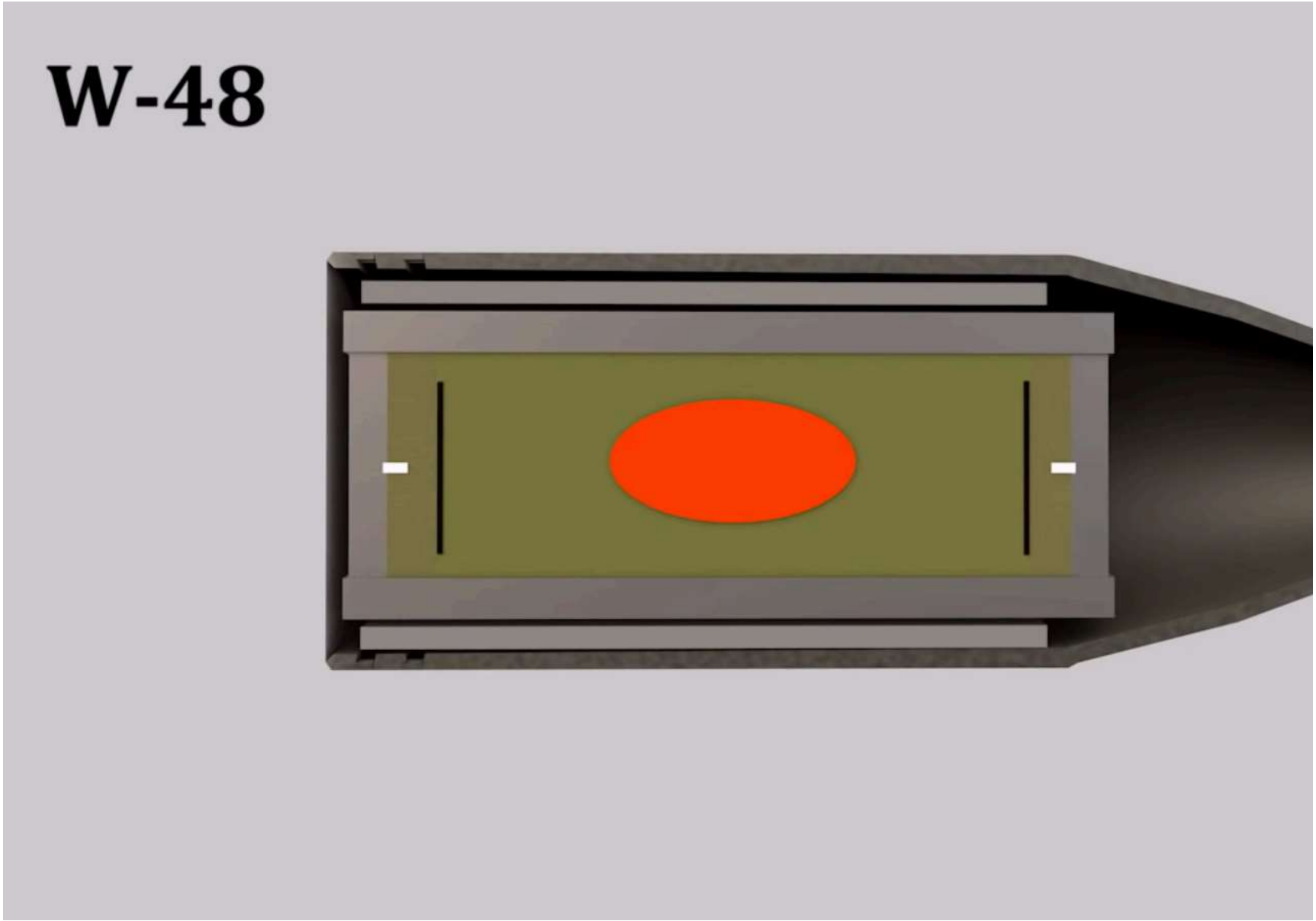


ABOVE: Russian illustration of American's **very inefficient first design of a 15kt oralloy (highly enriched U235) nuclear artillery shell, a total waste of money and materials, as the yield-predicting warhead designer of the first Russian tactical shell explains in his article (discussed in detail later in this blog post).** This American design of firing hollow rings of uranium-235 was a very inefficient device. (It is not much better than the design of the gun-type assembly Hiroshima bomb which contained enough oralloy to yield 1 megaton, but was so inefficient it yielded just 16 kt!) More efficient warhead designer Dr Theodore Taylor slammed gun-type assembly weapons as groupthink "committee" designs, based on minimising risks of a misfire, not maximising efficient use of fissile material!)

ABOVE: Russian illustration of a re-design of the America gun-assembly uranium-235 bomb to try to improve efficiency (not by much!). Here, each of the U235 pieces is fired at the other, to reduce assembly time and thus to allow a larger supercritical mass to be assembled before preinitiation risks (fizzle risk) becomes appreciable! American designs are obsessed with minimising risks. Russians are obsessed with maximising performance, efficiency and reducing costs to a minimum (the same approach used with their tanks etc in WWII).


W-33





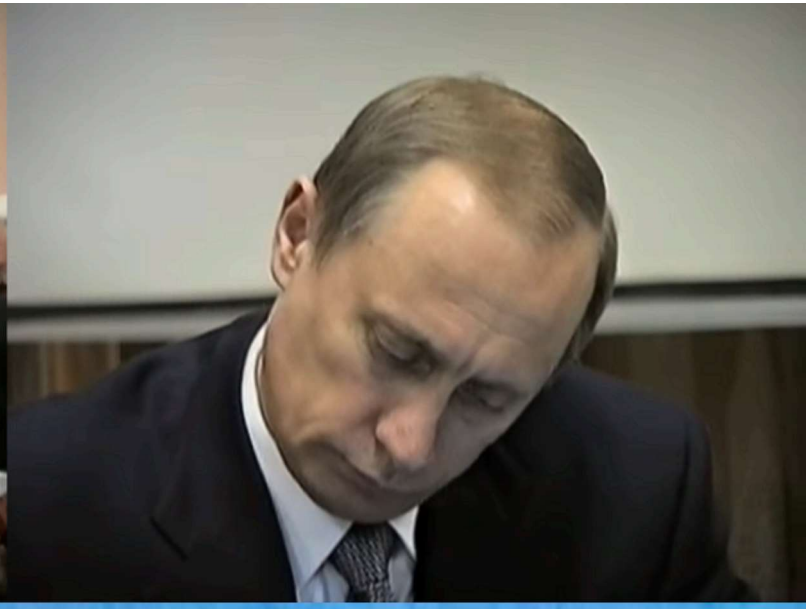
ABOVE: Russian illustration of the first cheap, efficient American linear-implosion plutonium artillery shell, the W48, first put into service in 1963, SEVEN YEARS after the first plutonium linear-implosion Russian tactical nuclear shell was successfully tested with 14 kt yield on 16 March 1956! This American W48 old nuclear shell remained in service from 1963 until 1992, when disarmers withdrew it, allegedly as appeasement, to somehow prevent WWIII via Russia invading Ukraine (or whatever lies are fashionable!).

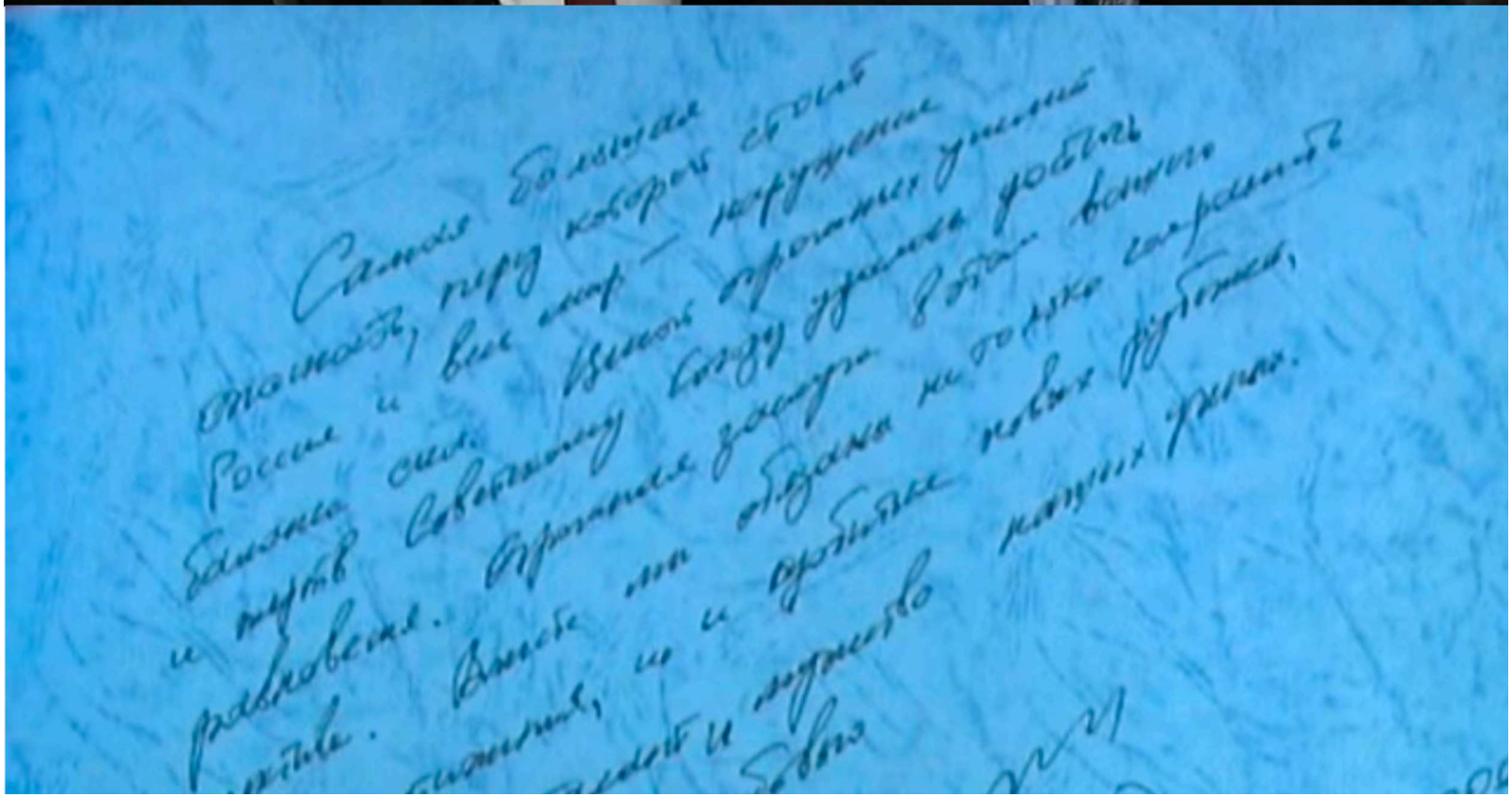


ABOVE: Russian nuclear warhead designers of the 170 and 210 kt MIRV thermonuclear warheads and the 2.5kt smallest ever diameter nuclear artillery shell (linear implosion), all at the Snezhinsk (formerly Chelyabinsk-70) nuclear warhead design laboratory. They are not as well paid as their American counterparts, but are respected and awarded medals and visits and praise by President Putin (compare faces above to the photo below).

President Putin meeting Russian nuclear warhead designers in 2000, and writing his praise of Snezhinsk nuclear lab's warheads! President Biden, by contrast, campaigned against the nuclear deterrence of invasions, even criticising Donald Trump's modest efforts to convert a relatively few old, low yield W76 Trident warheads into ad hoc tactical warheads four years ago, AFTER Putin had seized Crimea! Duhhh! The Cold War propaganda for Western nuclear disarmament is still going strong today despite all the lives lost in all the wars and invasions that could have been prevented by credible nuclear deterrence since 1992! Tactical nuclear weapons are not regulated by "arms control" liars, so Russia has thousands (precise number UNKNOWN!), and America has zero specifically designed tactical weapons (as we'll see later, the neutron output of low-yield dial-a-yield options on strategic warheads like the B61 are pathetic compared to purpose designed tactical nuclear warheads, so aren't a credible deterrent, a fact covered-up by disarmers). Translation from the 2005 Snezhinsk nuclear weapons film: "In 2000 the President of the Russian Federation visited the All-Russian Scientific Research Institute of Technical Physics. He examined the exposition of the museum of nuclear weapons and left the following entry in the book of honored visitors: ***The***



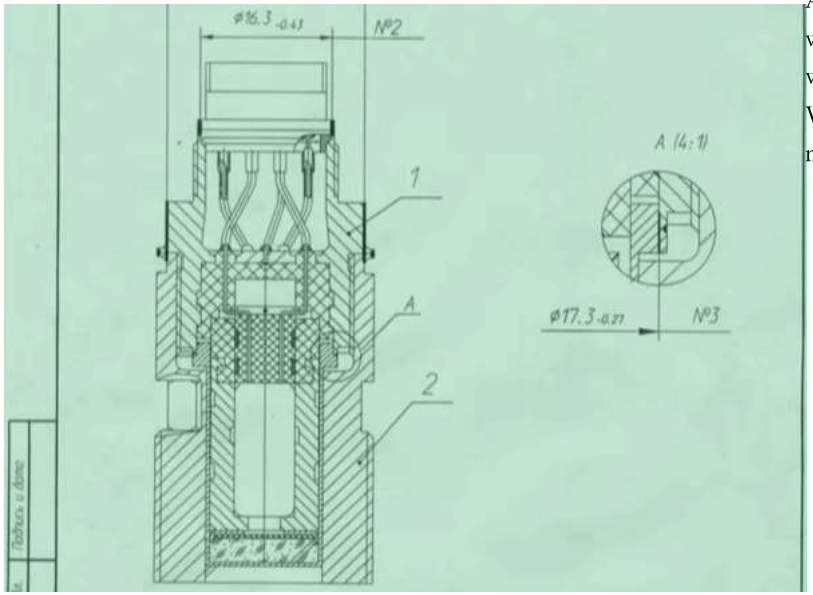




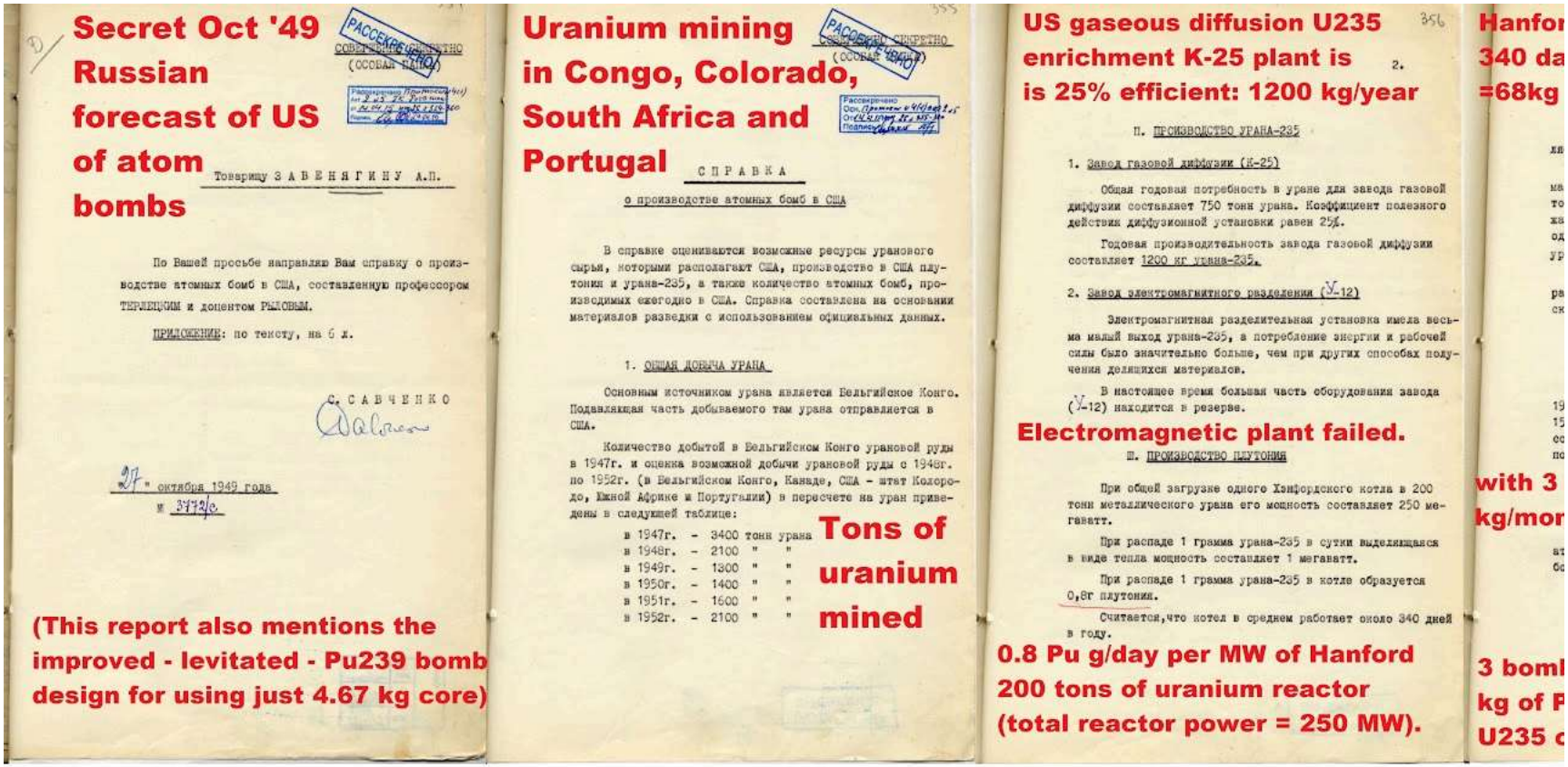
biggest danger facing Russia and the whole world is the violation of the balance of power at the cost of huge efforts and sacrifices to the Soviet. The Union managed to achieve a balance of great merit in this, due to your team together. We are obliged not only to maintain the existing achievements but also to achieve new frontiers relying on the talent and courage of our scientists. With hope and love, Vladimir Vladimirovich, March 31, 2000"



ABOVE: protected underground Russian launch controller centre for SS18 (Satan) ICBM's. Despite the "dead hand" automatic override system (which supposedly automatically launches missiles after a sustained loss of communications from Russian leaders), basic firing is done using relatively simple, low-tech equipment that is hardened against nuclear effects, e.g. resistant to EMP and shielded to give radiation protection against fallout collateral damage. Even if America could knockout such missiles, there is no guarantee that Russia would not - *in times of intense crisis such as a US-Russian conventional war - change its basic doctrine to launch them on warning,* before American missiles have arrived! Then American warheads would be uselessly blowing up EMPTY SS18 silos! Duh!!



ABOVE: declassified blueprint of Russian nuclear weapon detonator design. Everything they designed was more suitable for cheaper mass production than Western technology, maximising efficiency rather than minimising misfire risks which is the Western idea!



Secret Oct '49 Russian forecast of US of atom bombs

Товарищу З А В Е Н Я Г И Н У А.П.

По Вашей просьбе направляю Вам справку о производстве атомных бомб в США, составленную профессором ТЕРЛЕЦКИМ и доцентом РЫЛОВЫМ.

ПРИЛОЖЕНИЕ: по тексту, на 6 л.

С. С А В Ч Е Н К О

27 октября 1949 года
№ 3472/с

(This report also mentions the improved - levitated - Pu239 bomb design for using just 4.67 kg core)

Uranium mining in Congo, Colorado, South Africa and Portugal

С П Р А В К А

о производстве атомных бомб в США

В справке оцениваются возможные ресурсы уранового сырья, которыми располагают США, производство в США плутония и урана-235, а также количество атомных бомб, производимых ежегодно в США. Справка составлена на основании материалов разведки с использованием официальных данных.

1. ОБЩАЯ ДОБЫЧА УРАНА

Основным источником урана является Бельгийское Конго. Подавляющая часть добываемого там урана отправляется в США.

Количество добытой в Бельгийском Конго урановой руды в 1947г. и оценка возможной добычи урановой руды с 1948г. по 1952г. (в Бельгийском Конго, Канаде, США - штат Колорадо, Южной Африке и Португалии) в пересчете на уран приведены в следующей таблице:

в 1947г.	- 3400	тонн урана
в 1948г.	- 2100	" "
в 1949г.	- 1300	" "
в 1950г.	- 1400	" "
в 1951г.	- 1600	" "
в 1952г.	- 2100	" "

Tons of uranium mined

US gaseous diffusion U235 enrichment K-25 plant is is 25% efficient: 1200 kg/year

II. ПРОИЗВОДСТВО УРАНА-235

1. Завод газовой диффузии (К-25)

Общая годовая потребность в уране для завода газовой диффузии составляет 750 тонн урана. Коэффициент полезного действия диффузионной установки равен 25%.

Годовая производительность завода газовой диффузии составляет 1200 кг урана-235.

2. Завод электромагнитного разделения (У-12)

Электромагнитная разделительная установка имела весьма малый выход урана-235, а потребление энергии и рабочей силы было значительно больше, чем при других способах получения делящихся материалов.

В настоящее время большая часть оборудования завода (У-12) находится в резерве.

Electromagnetic plant failed.

III. ПРОИЗВОДСТВО ПЛУТОНИЯ

При общей загрузке одного Хэнфордского котла в 200 тонн металлического урана его мощность составляет 250 мегаватт.

При распаде 1 грамма урана-235 в сутки выделяющаяся в виде тепла мощность составляет 1 мегаватт.

При распаде 1 грамма урана-235 в котле образуется 0,8г плутония.

Считается, что котел в среднем работает около 340 дней в году.

0.8 Pu g/day per MW of Hanford 200 tons of uranium reactor (total reactor power = 250 MW).

Hanfor 340 da =68kg

with 3 kg/mor

3 bomb kg of P U235 c



РФЯЦ-ВНИИЭФ
Отдел фондов НТД
16.11.2000 N 244/63

Архивная копия

~~СОВ.СЕКРЕТНО.~~
Экз. № 1
несекретно
с 08.11.2000

ПРИКАЗ

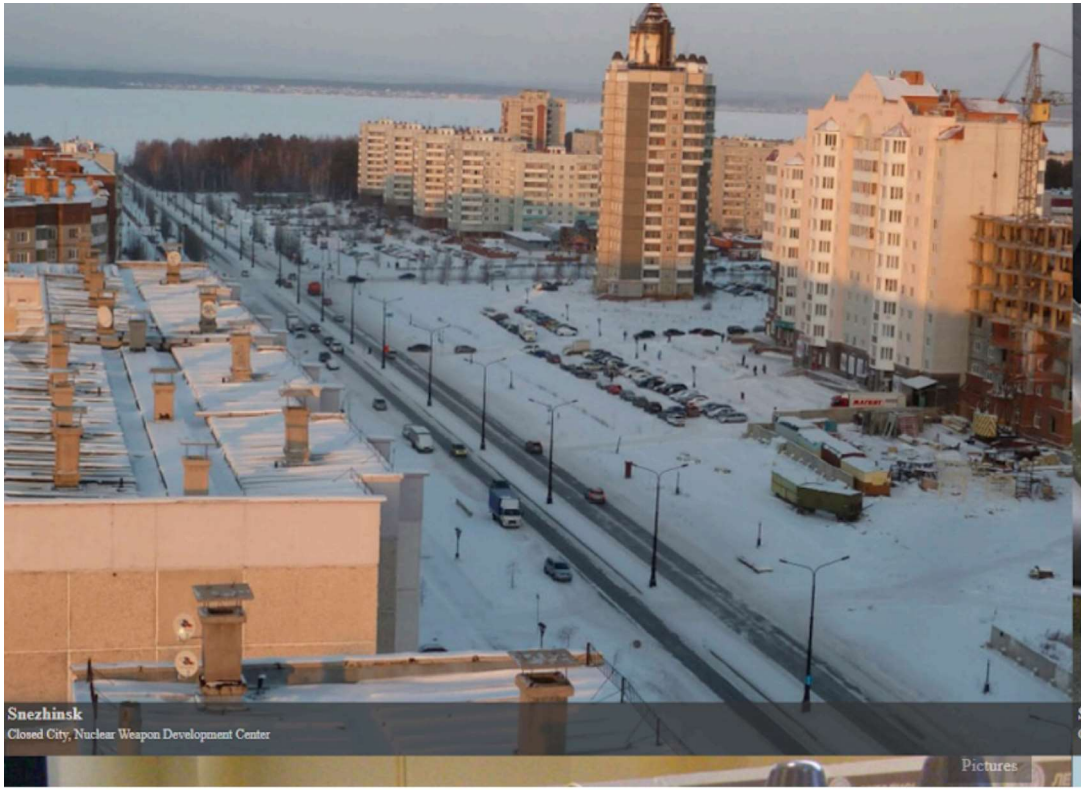
НАЧАЛЬНИКА ОБЪЕКТА

№ 0174 "26" мая 1953 г.

Содержание: по личному составу

ЗНАЧИТЬ: академика ЛАВРЕНТЬЕВА Михаила Алексеевича заместителем научного руководителя КБ-II и начальником специального отдела № 4, установив основной оклад, в соответствии с приказом ПГУ № 229 сс от 20 мая 1953 года, в размере 9.000 рублей в месяц с 15 мая 1953 года и 100% надбавку к основному окладу с момента прибытия на объект.

А.АЛЕКСАНДРОВ.


Snezhinsk
Closed City, Nuclear Weapon Development Center
Pictures


Snezhinsk
Closed City, Nuclear Weapon Development Center







https://en.newizv.ru/news/army/03-03-20
n-atomic-charge-from-a-cannon-what-kin
of-artillery-nuclear-charges-does-russia-
have

**The Russian army has means of deliveri
low-yield tactical nuclear weapons to
strike at enemy troops at a distance of
to 45 kilometers.**

by Igor Zot

***"The creation of tactical nuclear weapons, including for artillery systems, began immediately after the
appearance of the first atomic bombs. In the Soviet Union, such a task was set for specialists at the
beginning of 1952, and already in 1956, a successful test of the RDS-41 charge for a 406 mm caliber
projectile took place. ... In the early 1970s, nuclear warheads were created in Snezhinsk [Russia's 2nd
nuclear weapons design laboratory] for ammunition of 240 mm and 203 mm calibers for the B-4M towe
howitzer; heavy towed mortar M-240, self-propelled mortar 2S4 "Tulip" and self-propelled artillery gun
"Pion". ... 203-mm self-propelled guns 2S7 "Peony", which were put into operation in 1975. For them, l***

power tactical ammunition "Kleshchevitsa", "Sazhenets" and "Perforator" were specially created ... Th development of nuclear projectiles of 152.4 mm caliber is considered one of the brightest pages in the history of the creation of Soviet nuclear weapons. The creators of nuclear charges and nuclear ammunition based on them for artillery and mortar systems were awarded the USSR State Prizes (197 1974, 1984) and the Lenin Prize (1984)."

ABOVE: **"The creation of [Russian] tactical nuclear weapons, including for artillery systems, began immediately after the appearance of the first atomic bombs. In the Soviet Union, such a task was set for specialists at the beginning of 1952, and already in 1956, a successful [14 kt] test of the RDS-41 charge for a 406 mm caliber projectile took place. ... In the early 1970s, nuclear warheads were created in Snezhinsk [*aka the Cold War lab Chelyabinsk-70, i.e. Russia's equivalent to America's Lawrence Livermore nuclear weapons designers lab; a huge number of photos of their currently stockpiled nuclear warheads have been declassified with museum plaque summaries of details of the delivery systems they are each intended for, their nuclear physics package internal layout which differs from ALL Western nuclear weapons, the names of their key designers, and so on; and we have included a summary of this vital data in this blog post for easy reference, since they are the overriding nuclear war threat under the current political situation seems to be Russia, since America disarmed itself of tactical nuclear warheads in the 1990s apparently to convince Russia it could not credibly oppose a Russian invasion in the mistaken belief that this would end the risk of a nuclear war*] for ammunition of 240 mm and 203 mm calibers for the B-4M towed howitzer; heavy towed mortar M-240, self-propelled mortar 2S4 "Tulip" and self-propelled artillery gun 2S7 "Pion". ... 203-mm self-propelled guns 2S7 "Peony", which were put into operation in 1975. For them, low-power tactical ammunition "Kleshchevitsa", "Sazhenets" and "Perforator" were specially created ... The development of nuclear projectiles of 152.4 mm caliber is considered one of the brightest pages in the history of the creation of Soviet nuclear weapons. The creators of nuclear charges and nuclear ammunition based on them for artillery and mortar systems were awarded the USSR State Prizes (1973, 1974, 1984) and the Lenin Prize (1984)." - Igor Zot, *The Russian army has means of delivering low-yield tactical nuclear weapons to strike at enemy troops at a distance of up to 45 kilometers,* https://en.newizv.ru/news/army/03-03-2022/an-atomic-charge-from-a-cannon-what-kind-of-artillery-nuclear-charges-does-russia-have**

Dr Shirkov, the quantum field theorist who was the yield prediction designer of the RDS-41 tactical 14 kt two-point 406-mm diameter Russian nuclear artillery shell at Sarov, which was tested successfully on 16 March 1956 yielding the maximum possible predicted design yield of 14 kt kilotons, winning him the 1958 Lenin Prize, has a published unclassified article (PDF version of full article linked here) about it online **(webpage with summary of article including PDF link to full article is linked here). It was melon shaped, had a U238 reflector, and a thin Pu239 hollow core containing Po210-Be neutron initiator. At Irtysh River in Semipalatinsk, while they were waiting for the wind to stop blowing towards the town, to allow the RDS-41 to be safely surface burst (an air burst would not have created this fallout risk), Shirkov's friend Lev V. Ovsiannikov became interested in the QFT renormalization group functional equations Shirkov was interested in, and solved them, publishing the solution in Proceedings of the Academy of Sciences just three weeks after their nuclear test: https://scfh.ru/en/papers/the-tsar-projectile-for-nuclear-artillery/.**

Combustion, Explosion, and Shock Waves, Vol. 36, No. 6, 2000

Development of the First Nuclear Charge RDS-41 (11D) for Artillery Projectile

V. P. Zhogin*

Translated from *Fizika Goreniya i Vzryva*, Vol. 36, No. 6, pp. 14–20, November–December, 2000.

EDITORIAL

In the early 1950s, all publications concerning M. A. Lavrent'ev showed some reticence. Sometimes, one could read a phrase typical of that time: "... took part in the creation of the nuclear shield of the Motherland ...." Mikhail Alekseevich was even more

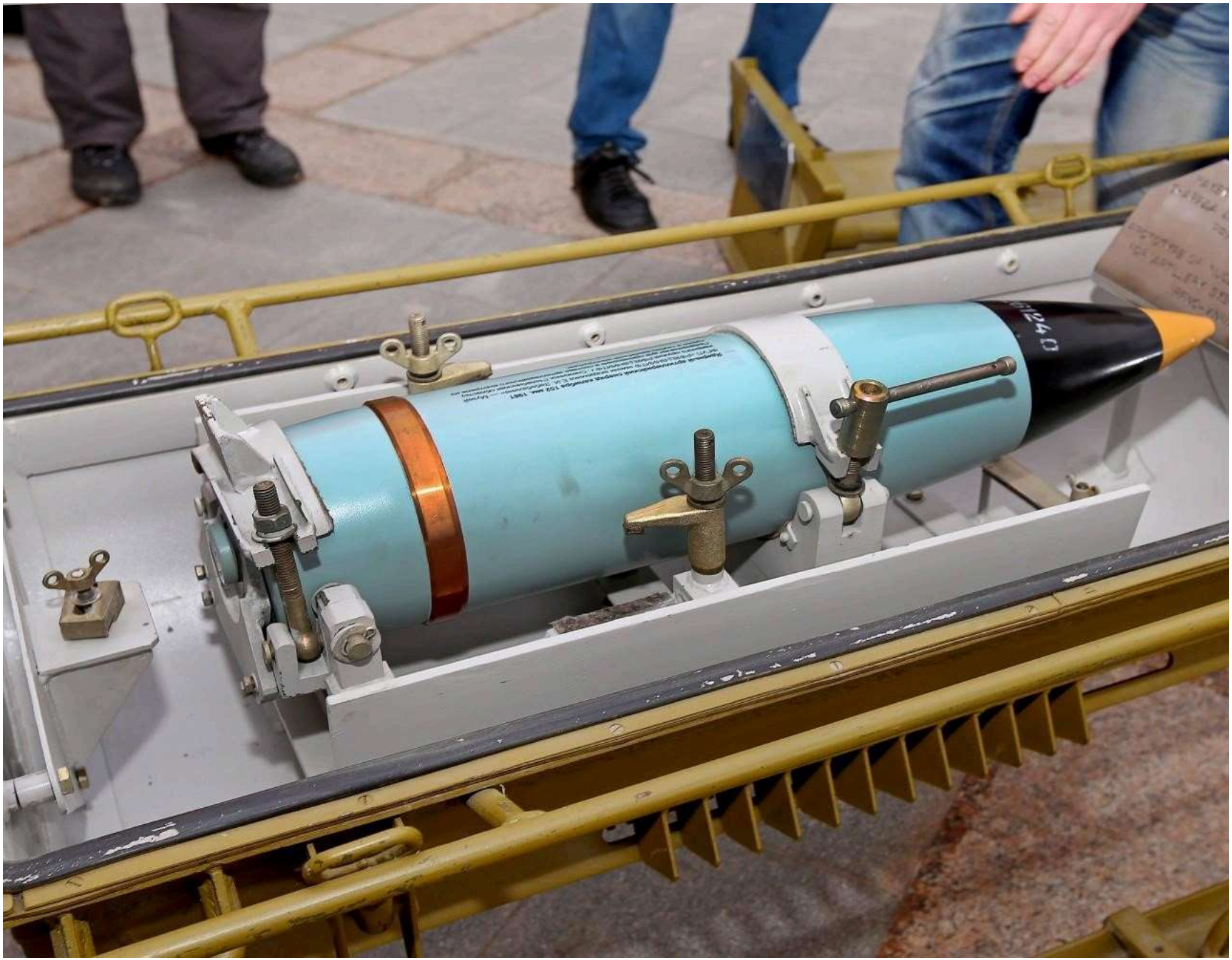
While preparing the jubilee issue of the Journal, the editorial board found it reasonable to publish the paper. Colleagues from the IEP did some editing (mainly decoding some technical abbreviations) and obtained permission for its publication. Thus, this paper appears on our pages.

The author of the article (in the last years

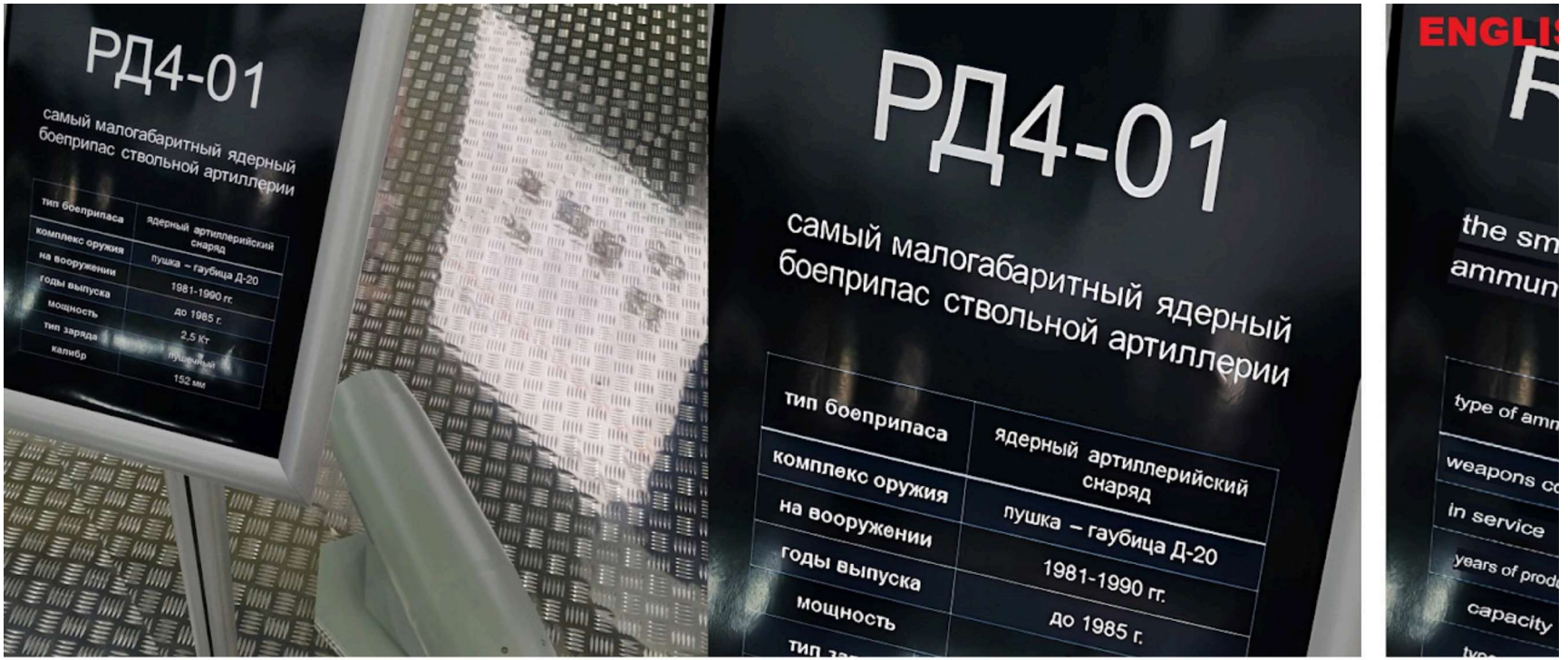
Fellow Russian nuclear weaponeer Vasilii P. Zhogin wrote in his paper, "Development of the First Nuclear Charge RDS–41 (11D) for Artillery Projectile", *Combustion, Explosion, and Shock Waves,* vol 36, November 2000, Issue 6, pages 689-694 (**translated from the Russian version in *Fizika Goreniya i Vzryva*, Vol. 36, No. 6, pp. 14–20, November–December, 2000**): "The result of this trial was so important that the team of implementors with Academician M. A. Lavrent'ev as its leader became Lenin Prize winners in 1958. This Prize was introduced anew and was the second after Kurchatov, Zel'dovich, Sakharov, and Khariton. ... In the U.S., the range nuclear test of the first nuclear charge MK-9 of diameter 280 mm (11 inches) was conducted on May 25, 1953 [**the 15 kt Grable shot of Upshot-Knothole in Nevada, which produced no significant fallout despite the fact that its 557.6 ft maximum fireball radius at second maximum thermal output exceeded the height of detonation of just 524 feet, a fact explained by RAND Corp's Dr Kellogg in the 1957 congressional hearings on fallout; the neutron induced Na-24 maximum dose rate near ground zero was only about 10 R/hr at 1 hour and decreased to merely 10 milli-Roentgens per hour at about 1 mile from ground zero**!]. ... The [RDS-41] focusing system was developed by V. P. Zhogin. ... Electric detonators were elaborated by M. I. Puzyrev's team. The neutron source was designed by A. I. Abramov ... a thermostable explosive composition was chosen for use in the charge. After a series of examinations, it was tested on the range of the Central SRI-58 by gun-firing of 2000 37-mm rounds to check their resistance to explosion. ... A test of the RDS-41 charge

was planned for March, 1956. The charge enclosed in a projectile was to be placed on the floor of a wooden hut. ... finally the trial was set for the 16th of March ... The equipping operation was delayed for an hour (quite unexpectedly, the aluminum lids of the steel projectile body were jammed, and the projectile body required cooling with snow). ... Some hours later the device was detonated. The results of the test were beyond expectations. The charge exhibited the highest possible power." (**Note that the seismic and fallout data at long range led the CIA in its Top Secret NIE report dated 16 May 1962 to wrongly assess this 16 March 1956 Russian nuclear test, "Joe 21" to be 30 kt yield, when in fact the accurate close-in yield determination by Russia was 14 kt. At least the CIA correctly deduced it was a surface burst!**)





ABOVE: **Russian news aka propaganda site *infosmi* has published photos of Russian nuclear weapons in crates ready for use in the Ukraine, e.g. see "Tactical nuclear weapons of the Russian Federation will force the US and NATO to capitulate", https://infosmi.net/politic/280327-takticheskoe-yadernoe-oruzhie-rf-zastavit-ssha-i-nato-kapitulirovat/ "As Voennoye delo reports , the risk of using nuclear weapons is only increasing, with Western experts James Ragland and Adam Lowther saying that the main danger lies in Russian tactical nuclear weapons. At the moment, according to experts, the number of such ammunition that Russia possesses ranges from three to six thousand units, while the North Atlantic Alliance does not have weapons of this type at all. In the current situation, according to analysts, the Russian side can use tactical nuclear weapons in such a way that the effect of destruction, as well as radioactive impact, is minimal, while the psychological aspect of such actions will reach a maximum. As a result, the US and NATO will be forced to capitulate to the threat of a full-scale nuclear conflict." (There is one BIG problem with this particular example of Russian "propaganda": it happens to be a *credible threat,* unlike Western books on nuclear weapons/war effects. Even bad propaganda can sometimes be useful kicking the self-deluded into sense, if they can be persuaded to face the truth, rather than the fairy tales from the even worse propaganda of disarmament activists and bigots on knockou blow and countervalue nuclear war. But the correct solution is *not the capitulation to Russia suggested in this article*, but instead for NATO to begin once more to credibly deter Russia from its conventional warfare which risking escalating to tactical nuclear war, *when it runs out of conventional arms, due to the supply of Western arms to Ukraine to enable it to blow up Russian conventional weapons stockpiles.* NATO had tactical nuclear weapons for this very same purpose in the Cold War, including the W54 and later the W79, these designs still exist and these can be produced again in an emergency to serve the same useful purposes, of deterring both nuclear escalation in an invasion, and WWIII. The fact is that the Western tactical nuclear warhead disarmers SIMPLY GOT IT WRONG.)**


РД4-01
самый малогабаритный ядерный боеприпас ствольной артиллерии
тип боеприпаса
ядерный артиллерийский снаряд
комплекс оружия
пушка – гаубица Д-20
на вооружении
1981-1990 гг.
годы выпуска
до 1985 г.
мощность
2,5 Кт
тип заряда
пушечный
калибр
152 мм
РД4-01
самый малогабаритный ядерный боеприпас ствольной артиллерии
тип боеприпаса
ядерный артиллерийский снаряд
комплекс оружия
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ЯДЕРНЫЙ СНАРЯД
КАЛИБРА 152 ММ
ДЛЯ САМОХОДНОЙ
АРТИЛЛЕРИЙСКОЙ



ABOVE: the world's smallest diameter nuclear weapon is the Russian Snezhinsk lab's 2.5-kiloton 53 kg ZBV3, a 17.4km range, 152.4 mm diameter, 774 mm long artillery shell, shown here with its museum plaque (it is also shown below with the world's biggest ever nuclear weapon - also, you guessed it, a Russian product, in the Snezhinsk nuclear weapons lab instructional museum of warhead design). (*For comparison, the smallest Western nuclear weapon, Theodore Taylor's 0.02 kt W54 or Davy Crockett, is 305 mm in diameter, 457 mm long and 26.5 kg. So the Russian ZBV3 is only half the diameter of the W54, but it is twice the mass and of course longer than the W54. There is also a great difference in yield, 0.02 kt for the W54 compared to 2.5 kt for the ZBV3*.) The ZBV3 research supervisor was Academician E. I. Zababakhin, the chief designer of nuclear weapons was Academician B. V. Litvinov, and the chief designers of the development of nuclear weapons were L. F. Klopov, O. N. Tikhane and V. A. Vernikovsky. This design began in 1971 and was completed in 1981. Manufacture by mass-production began at the Trekhgorny City Instrument Making Plant in 1981 and was completed in 1991. The special casing it is held in is designed to protect it during storage and transit to the battlefield. It was built to be fired from the widest possible range of Russian artillery: D-20 howitzer guns, ML-20 howitzer guns, 2C3 Akatsia self-propelled howitzers, 2A36 Giatsint-B guns (towed), 2C5 Giatsint-C self-propelled guns.

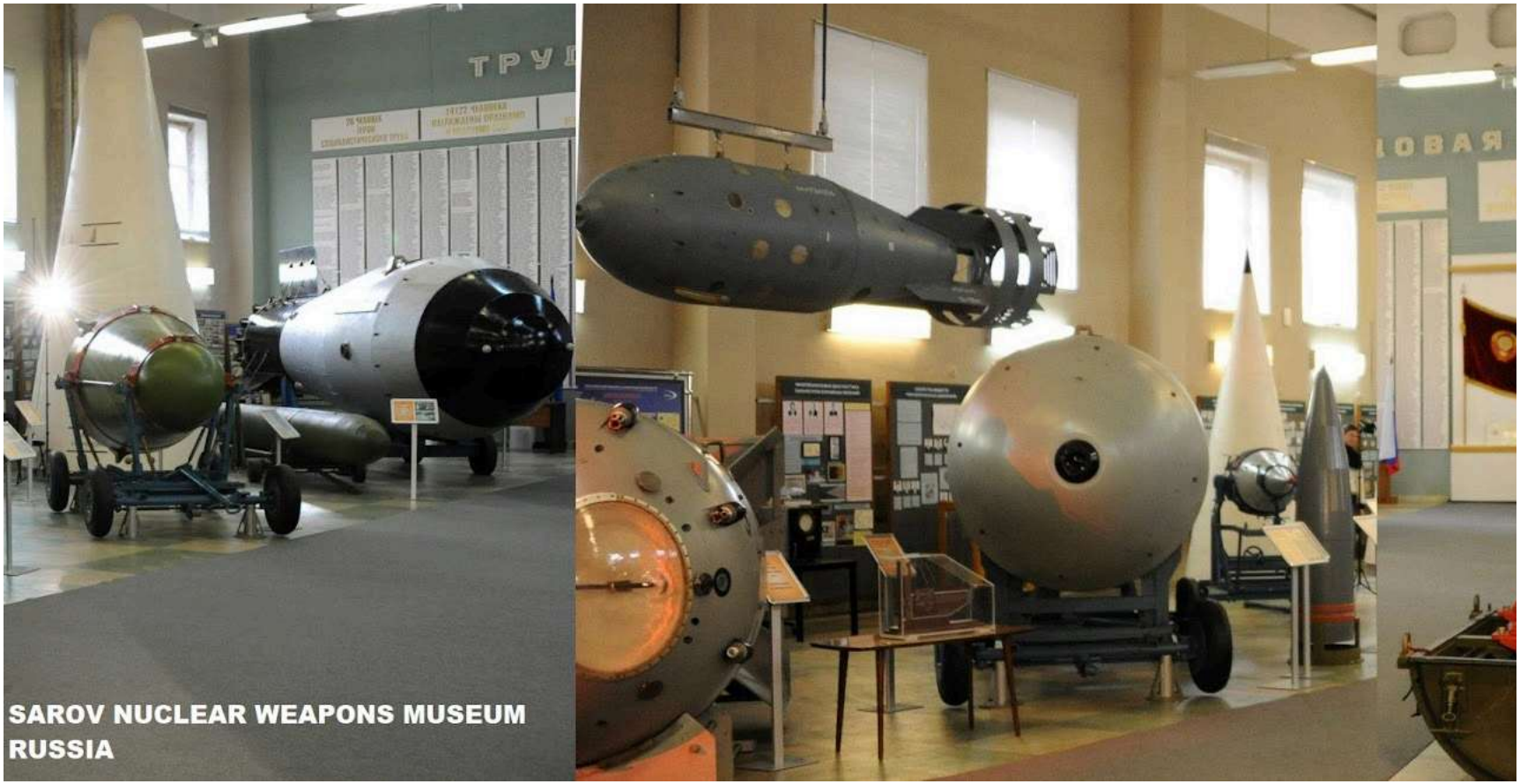
The descriptive plaque on the bomb in the photo above states (in Russian): "NUCLEAR PROJECTILE. 152 mm CALIBRE. FOR SELF-PROPELLED ARTILLERY INSTALLATION. **RFNC - VNIITF [note that VNIIFT = the Snezhinsk nuclear weapons lab design, now part of Pocatom; they have some information on their website about their achievements in developing the best Russian nuclear warheads, stating that they developed the smallest ever nuclear weapon, namely the 152mm one photographed above, the cleanest ever nuclear weapon "in which 99.85% of the energy is obtained through the synthesis of nuclei of light elements", the lighest ever nuclear weapon, and the "the most economical in terms of the consumption of fissile materials", and nuclear warheads capable of withstanding 120C temperature, 750 atmospheres overpressure, and 12,000g's of acceleration on re-entry; maybe we should start buying their nuclear warheads if all this is true]**." Snezhinsk nuclear weapons lab also has an interesting webpage about their peaceful nuclear weapons tests here: **http://vniitf.ru/article/mirnie-vzrivi "Of the 124 peaceful explosions carried out in the USSR, 80 nuclear charges developed at VNIITF were used in 75 cases. ... VNIITF began to carry out peaceful explosions of its charges from May 1968. ... All developments of NEDs for peaceful purposes were headed, carried out, supported and supervised at VNIITF by Academicians E.I. Zababakhin, E.N. Avrorin and B.V. Litvinov. ... If for peaceful camouflage explosions there were no special requirements for the “purity” of charges, then for ejection explosions (formation of dams, trenches) nuclear explosive devices with a minimum amount of radioactive fission fragments were needed. In these cases, thermonuclear devices are more suitable, in which the main energy release is due to fusion reactions. Such charges were also included in a series of peaceful NEDs developed at VNIITF, and were used to create a trench in the Pechora-Kolvinsky Canal section (Perm Region) - an integral part of the project developed in the 1970s to transfer the waters of the northern rivers to the Volga. The experiment to create this trench was called "Taiga". It was preceded by model explosions of low-power (0.2 kt) nuclear charges in wells at the Semipalatinsk test site (1968) "Telkem-1" and "Telkem-2", where the formation of an ejection funnel (a single explosion, T-1) and a short trench (a group explosion of three charges, T-2) was checked. The analysis of the results of these explosions was used in the design of the main experiment "Taiga". A year after this experiment, an improved “clean” charge was tested at the Semipalatinsk test site with a 5-**

fold reduced fragmentation activity compared to that used in the Taiga operation. ... In conclusion, we note that VNIITF is, in fact, the only organization in the world that develops specialized nuclear explosive devices for industrial applications."]


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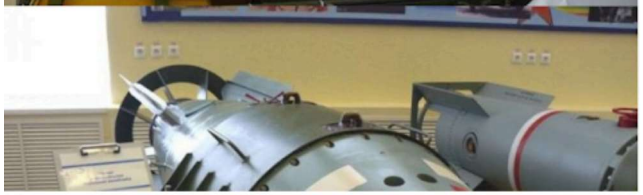



Russian Nuclear Weapons Museum biggest and smallest devices compared

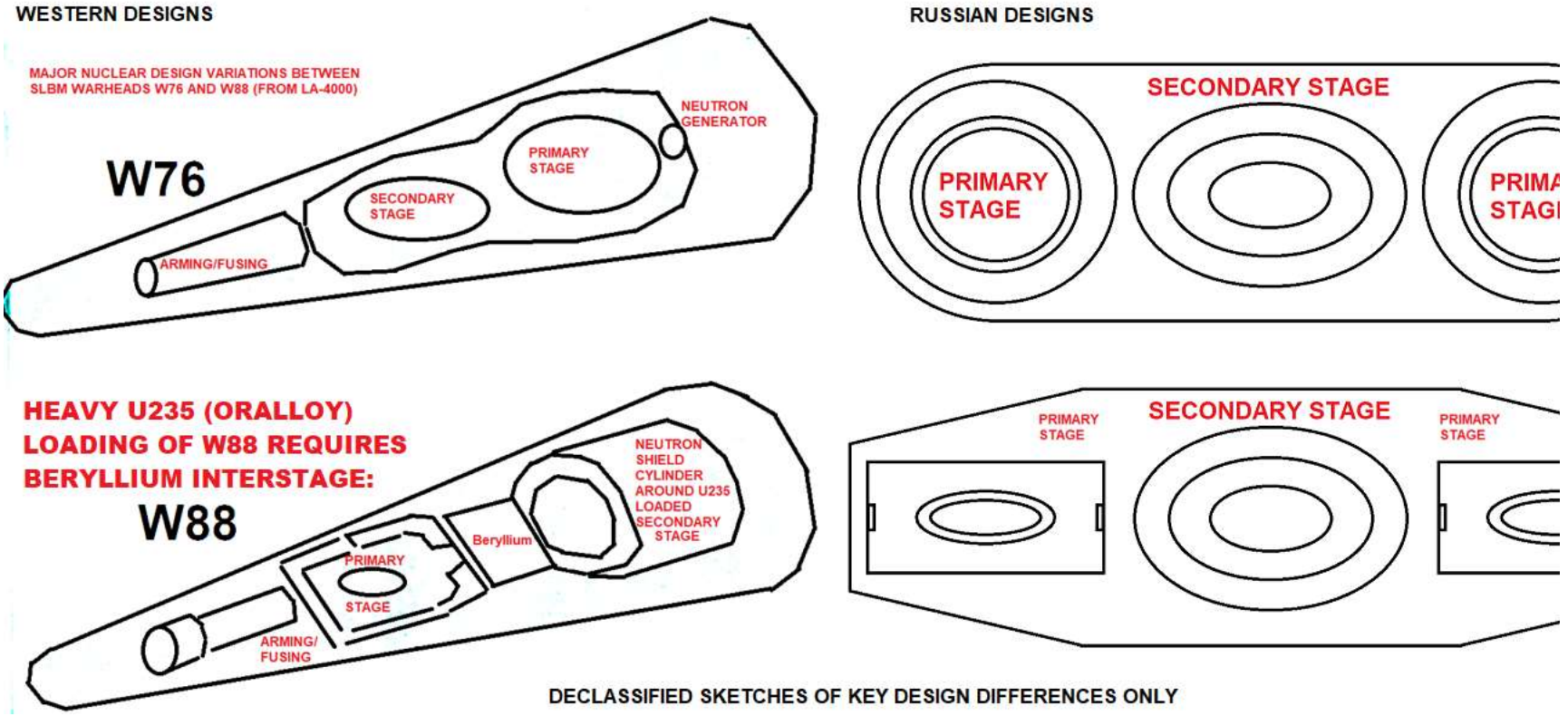

SAROV NUCLEAR WEAPONS MUSEUM
RUSSIA


Snezhinsk/Snowtown Nuclear Weapon Museum, Chelyabinsk







U.S. and Russia are entangled in a dangerous war of words escalating to include deployment of further American military forces in Eastern Europe. What's more concerning: Russia has dedicated 2,000 tactical "nukes" to this arena and announced the deployment of 40 new strategic ballistic missiles capable of striking America's homeland. As its conventional military hardware grows incapacitated from physical decay and technological obsolescence, nuclear armaments become the mainstay of strategic Russian defense. Being Russia's only strategic alternative, their use becomes much more plausible. Plus, with the decline of the Russian Ru-

ABOVE: In 2015, S. Douglas Woodward's book *Is Russia Destined to Nuke the US* pointed out that Russia's only real military superiority is in *tactical* nuclear weapons, the most effective deterrent possible to allow it to invade Ukraine and Europe, since the West has now no way to counter it: "Europe protests the incursion but seems unwilling (and unable) to use military force to push Russia back from its designs on Ukraine and Crimea. ... Then there is the state of the Russian people. They suffer under economic sanctions imposed by Europe and the United States. Backed into a corner, is it suprising Russia rattles its sabre? However, Russia's only sabre - its one area of military superiority, is Russian tactical nuclear weapons [2,000] outnumbering NATOS tactical nukes 10 to 1 in the region. As Russia weakens in critical areas, several factors are converging which suggest Russia must act now ... The February 2014 agreement between Russia, Ukraine, France and Germany (the so-called Minsk Agrement) has failed ... 'During the era of political romanticism, the Soviet Union

pledged never to use nuclar weapons first,' Kiselyov told the audience of Vesti Nedeli, his current affairs show ... 'But Russia's current military doctrine does not - no more illusions'."

Carter Directive Modifies Strategy for a Nuclear War



1979: Russian Tsar

By Michael Getler
Washington Post Staff Writer

President Carter has signed a new directive that modifies the strategy the United States would use in fighting a nuclear war with the Soviet Union, according to high-ranking administration officials.

The new strategy involves placing less emphasis on all-out retaliation against Soviet cities in the event of a Russian attack. Instead, there would be greater emphasis on destroying Soviet military forces and both political and military command centers early in a conflict in hopes of convincing Moscow that it could not ultimately "win" a war.

Presidential directives on such matters are milestones in the 35-year history of the atomic age.

For much of the past two decades, the United States has relied on having enough nuclear might to smash all major Soviet cities and industries, even after absorbing a first strike by Moscow, so that the Soviets would be deterred from such an attack in the first place.

This was called by the appropriate name of MAD, for mutual assured destruction. It still is a major part of U.S strategy.

But as the Soviet missile force grew larger than the U.S force and as its accuracy improved, the Soviets not only could threaten U.S cities but U.S land-based missiles as well.

Furthermore, an appreciaton grew among some specialists in this country that Soviet military doctrine did not necessarily accept the idea that a nuclear war could have no winners.

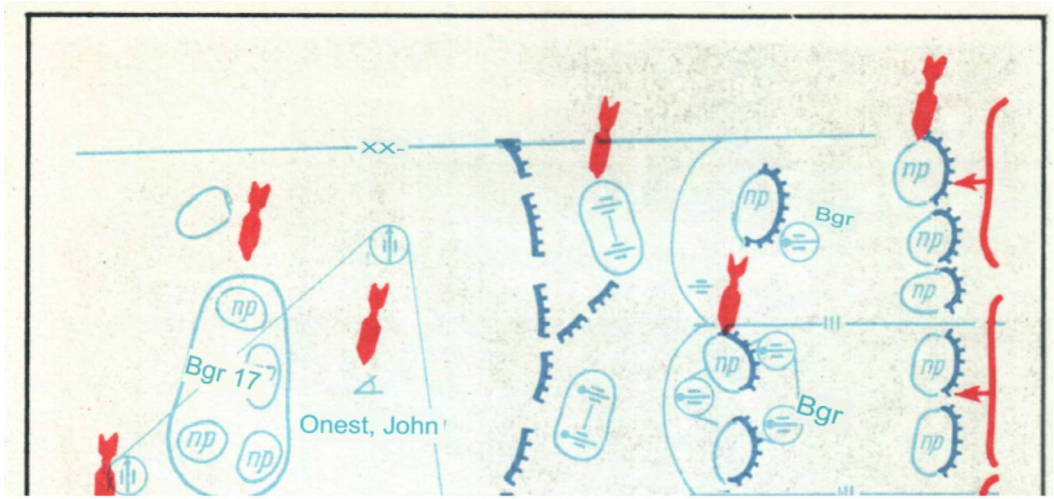
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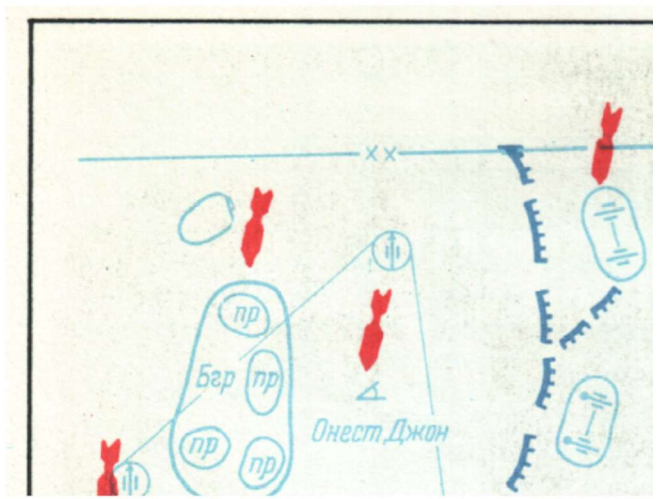
Nevertheles
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interest in U.
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the president
predecessors.

His chief
Zbigniew Brz
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faces in the 19

Extract from Washington Post, 6 August 1980 (35th anniversary of Hirosh

ABOVE: **Russian plans for the tactical use of nuclear weapons (English translation left; original Russian on right), from our 20 September 2017 blog post here, taken from restricted Russian manual *Nuclear Weapons - A Manual for Officers*, which we obtained from Ukraine and put on internet archive** to show the threat. On pages 9-10 of his 1977 book *Surviving Doomsday*, Bruce


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Sibley (who in the 1980s edited the UK CD magazine *protect and Survive Monthly*) pointed out: "During the 1960s, the original lead which America held in numbers of strategic missiles began to show signs of erosion ... Not only were the Russians developing new missiles and warhead techniques, but their whole armament programme began to expand at an alarming rate. At first, Soviet proclamations asserted that this was merely a 'catching up' with America and NATO, but since this expansion has continued aggressively ... it may not be

an exaggeration to hold the view that the Soviet Union has now overtaken NATO and American military might ... The matter of civil defence playing a major role in strategic warfare planning ... the 'ace in the hole' ... No country on earth has a civil defence programme as extensive as the Eastern Bloc. ... Unfortunately, the majority of Western politicians and some of their advisors seem quite oblivious to the *strategic* significance of Russia's preoccupation with a major civil defence programme. They either scorn or remain in ignorance of the facts. Some critics even charge that by its very existence, civil defence makes the prospect of nuclear war more thinkable, and therefore should not be developed. This is an essential part of their package for banning the bomb."

ABOVE: **Page 42 of Putin's latest 2014 Russian civil defense manual supporting the tactical use of nuclear weapons (English translation and original Russian test), from our 20 September 2017 blog post here, full manual was put on internet archive** to show the threat. Again, civil defense when combined with offensive plans for nuclear weapons is an offensive problem; the opposite is true for purely defensive civil defense (which increases the nuclear threshold by enabling survival of accidental and limited nuclear strikes). On pages 5-6 of his 1977 book *Surviving Doomsday*, Bruce Sibley pointed out: "Meanwhile, the Soviet Union possesses the largest and most comprehensive war-survival programme in the world today. The Soviet leadership never tires of reiterating that victory is impossible unless every Soviet citizen has undergone intensive practical and moral-psychological civil defence training. ... The Soviet evacuation scheme intends to scatter 241 million citizens throughout the Russian countryside ... urban evacuation is the key to twarting the 'estimated' killing power of nuclear missiles ... the Soviets have maintained vast stockpiles of grain, tinned food, fuel, water, medical supplies, clothing, spare parts and raw materials throughout the USSR ... The entire Moscow underground railway system has been equipped to give protection and life-support to over one million persons. Every Soviet citizen has been issued with a gas mask, that will filter out radioactive dust and chemical and biological aerosol agents ... the Russians may be committed to the downfall of Western ideology - by peaceful subversion or by open conflict." (*All* of the arguments against this kind of civil defense are specious: Britain evacuated 1.5 million of vulnerable people from London 48 hours before declaring war in 1939, and the Luftwaffe didn't bomb the evacuees or "simply" retarget the dispersed population. Another fallacy is that dispersing millions of people into the countryside will make sanitation and food problems worse. The reality is that sanitation and food supply logistics break down in bombed cities far sooner than in the countryside, where people are nearer food sources! **The effect of fast-decaying fallout on crops is trivial**.)

Министерство Российской Федерации по делам гражданской обороны, чрезвычайным ситуациям и ликвидации последствий стихийных бедствий

ГРАЖДАНСКАЯ ОБОРОНА

Учебник

2014 г.

Защитными свойствами от действия ударной волны обладают также танки, БТР и БМП.

При невозможности использовать защитные свойства различных сооружений следует применять элементарные меры защиты. Так как для незащищенного человека наибольшую опасность представляет скоростной напор, то целесообразно до подхода ударной волны лечь на землю лицом вниз, головой или ногами в сторону взрыва. При этом площадь поперечного сечения уменьшается примерно в 10 раз, а воздействие скоростного напора будет минимальным.

Воздействие скоростного напора снижают различные углубления (кюветы, ямы, воронки и др.) или невысокие прочные стенки, пни и другие предметы, за которыми можно укрыться.

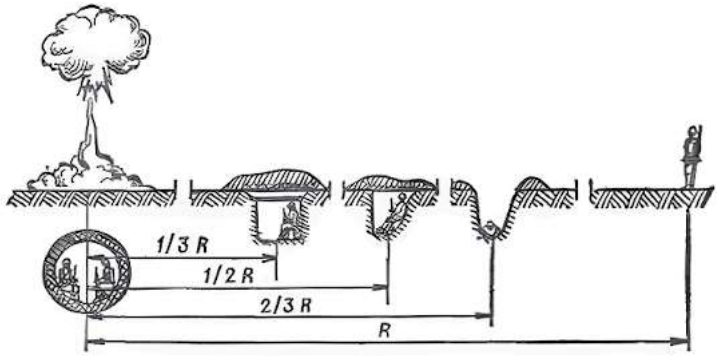


Рис. 1.8. Защитные свойства полевых фортификационных сооружений от воздушной ударной волны ядерного взрыва

Ministry of the Russian Federation fo
Emergencies and Elimination c
of Natural Disasters

CIVIL DEFEN

Textbook

2014 г.

Tanks, armored personnel carriers also have protective pro
and BMP.

If it is impossible to use the protective properties
elementary protective measures should be applied. Since
greatest danger for an unprotected person, it is advisab
head or feet in the direction of the explosion before th
same time, the cross-sectional area is reduced by abou
the high-speed pressure will be minimal.

The impact of high-speed pressure is reduced
(ditches, pits, funnels, etc.) or low strong walls, stumps
which you can hide.

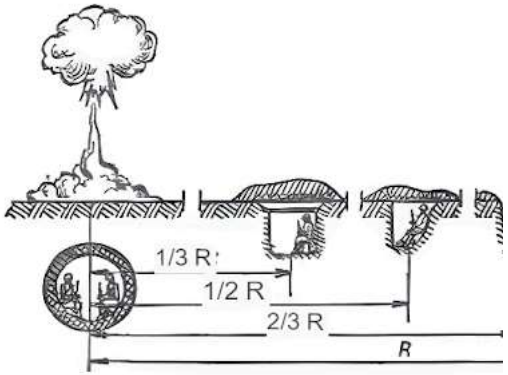
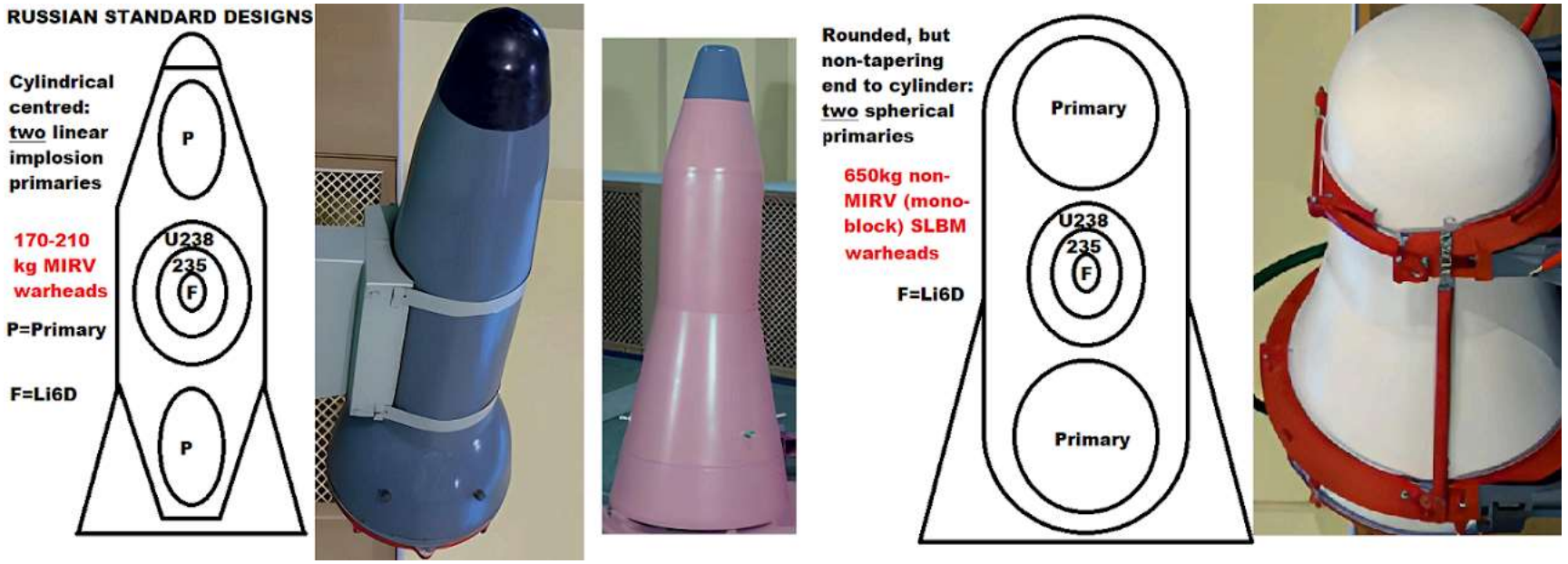


Figure 1.8. Protective properties of field fortifi
air shock wave of a nuclear expl

TRANSLATION FROM PUTIN'S 2014 CD BOOK



ABOVE: major designs of Russian warheads using two primary stages wired in parallel circuit (for explosive detonators on the implosive systems of each primary charge, and also parallel circuit for the later pulse of current to the neutron sources for each primary charge), to produce x-ray ablative linear implosion of a central thermonuclear charge:

"**Yuri Nikolaevich Babaev became one of the main creators of the world's largest detonated bomb ... In the future, the efforts of Yuri Nikolaevich Babaev focused on the fundamental improvement of thermonuclear charges, *for which he developed the theory of "double approach"*. - http://www.biblioatom.ru/founders/babaev_yuriy_nikolaevich/**"

These are an alternative to using plastic foam to diffuse x-rays in all directions to allow a *single* primary stage to compress a spherical secondary stage isotropically, without x-ray shadowing problems. Plastic foam reduces speed and efficiency of x-ray delivery (the recoil ablation force on the secondary, $F = dp/dt$, is reduced when plastic foam is used to diffuse x-rays, because the longer diffused pulse of x-rays which is delivered via plastic foam has an increased pulse duration, t). For many purposes, therefore, two primary stages for linear implosion of a fusion charge, without needing any plastic foam, is just as an *efficient* approach as that used in single-primary Western devices.

ABOVE: **error by DTRA regarding energy absorption by buildings. U.S. Government's *DTRA DISPATCH* magazine article "Building Effects on Airblast from Nuclear Detonations in Urban Terrain" falsely conflates the abrupt shock front with the length of the entire blast wave, claiming that since buildings are 2000 denser than blast waves: "the air will move 2000 times father than the structure in the same time interval. Thus while the building is moving 1cm. the shock has moved more than 20m, and the energy is a small fraction of 1% the blast energy." The key error here is the statement that "the shock has moved 20 m".** They meant the shock *front*, which isn't the same thing as the entire blast wave, the thickness of which is dependent on bomb yield, and is what moves drag-sensitive buildings with large window openings where the overpressure quickly equalises. So they are totally wrong. They are absurdly arguing that only 1/2000 of the dynamic pressure (kinetic energy per unit volume of air) of air presents a force upon buildings, or

Building Effects on Airblast from Nuclear Detonations in Urban Terrain *(continued)*

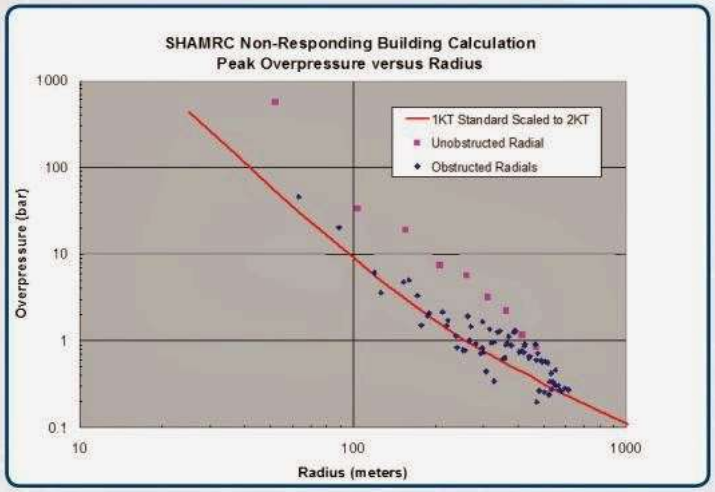


Figure 1. Urban pressure distribution along different radials (ARA, Inc.)

While the overpressure is drastically changed by the presence of buildings, the dynamic pressure is modified even greater in comparison to the ideal. The dynamic pressure is stagnated at each encounter with a building and is enhanced along streets and alleys. There are regions of nearly complete stagnation (no dynamic pressure) in regions that would have very high dynamic pressures over an ideal surface. The high dynamic pressures and dynamic impulses aligned with streets will move any loose objects such as cars, trucks, mailboxes, or sidewalk stands hundreds of feet. Cars will be piled on top of one another and block roads and access to buildings closer to the detonation point.

Many recent calculations have been criticized because they assume the buildings are nonresponding and perfectly rigid. The argument for this assumption is that the materials from which the structures are made have a density that is at least 2,000 times the density of air. This means that when a shock wave strikes a structure, the air will move 2,000 times farther than the structure in the same time interval. Thus while the building is moving 1 cm, the shock has moved more than 20 m, and the energy lost from the shock is a small fraction of 1% of the blast energy.

As an example of this behavior, an experiment was conducted at the Ernst Mach Institute in Freiburg, Germany, in which a model house was constructed of steel and exposed to a blast wave in a shock tube. Several shadowgraph pictures were taken as the shock wave engulfed the structure. Reflections from the walls and roof could be readily identified. A second model house was constructed from balsa wood using the same dimensions as the steel house and exposed to the same blast pressure.

When the shadowgraph pictures were compared, no distinction could be made between the steel and balsa wood shock reflections. The balsa wood model did not measurably move over the entire time of the shock interaction with the structure.

Another series of experiments[1,2], in the United Kingdom, were conducted with a model city built from solid concrete buildings. Pressure gauges monitored the loading at many points on buildings throughout the city. A high-explosive charge was detonated at a height of burst such that the Mach stem would be higher than the buildings as it passed over the model city. The experiments were criticized for using nonresponding structures. Therefore, the city was carefully reconstructed of thin mirror glass on light metal frames with the gauges installed at the same locations as the concrete city, and the experiments were repeated.

U.S. Government's DTRA DISPATCH magazine, "Building Effects on Airblast from Nuclear Detonations in Urban Terrain" falsely conflates the abrupt shock front with the length of the entire blast wave, claiming that since buildings are 2000 denser than blast waves: "the air will move 2000 times father than the structure in the same time interval. Thus while the building is moving 1cm. the shock has moved more than 20m, and the energy is a small fraction of 1% the blast energy."

They meant the shock FRONT, which isn't the same thing as the entire blast wave, which is what moves buildings. So they are totally wrong.

Building density and the distance the shock FRONT has moved past has no relevance to thickness the layer of air BEHIND the shock front, which is what is pushing the building, and this thickness increases with bomb yield!

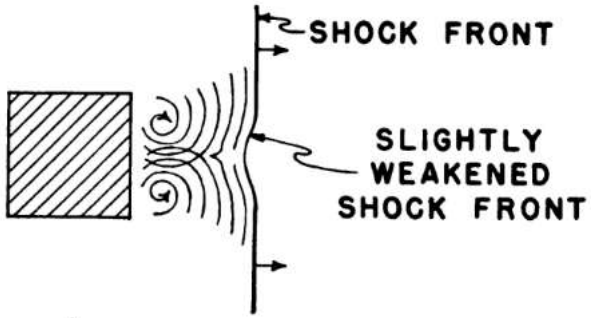
presumably upon ships sails (which are denser than air), or eardrums (again which are denser than air). The shoddy, imprecise form of their statement makes it hard to understand precisely what they are saying, but it seems to be that they are assuming falsely that the blast wave consists only of a shock front, which will move 20 m past the building (without moving it significantly) before the building has moved 1 cm, but the density of the building and the location of the shock *front* relative to the building is *IRRELEVANT* while the mass of air *BEHIND* the shock front is delivering energy to the building, as proved by the absence from the relevant equations of both building density and shock front location after it has passed, but winds are still blowing. It's not the shock front that causes the building to oscillate, but the wind pressure behind the shock front. The building density, and the distance the shock *FRONT* moves beyond the building, have no relevance to thickness the layer of air *BEHIND* the shock front, which is what is pushing the building, and this thickness increases with bomb yield! (However, most of the push to the building occurs due to the highest dynamic pressure, i.e. the air just *behind* the discontinuity or "shock front".) As a result, the actual energy absorption by a building is more than 100 times greater than DTRA's ratio of densities claims. Small-scale models of buildings, whether absolutely rigid or made from glass mirrors don't in any way, shape or form model the energy captured in oscillations by thousands of tons of reinforced concrete of real buildings.

The wind (dynamic) pressure induced motion effects which have *nothing to do with the relative density of the shock front compared to the building*. The amount of energy picked up from either the wind pressure of normal breezes or the blast wave of a nuclear explosion, by a building in oscillatory energy is the time-integrated form of Newtonian equation $E = F.x$, where force $F = P.A$, where P is dynamic pressure and A is area, and x is the amount of displacement induced. There's no density of the building in these equations, and no dependence on the shock front, but rather the integrated dynamic pressure over the entire duration of the blast at the location of interest (if the building delays the passage of the shock front instead of letting it pass freely through windows etc, then there's an additional term for the time-integrated overpressure contribution). As dynamic pressure is removed by the building - not by the shock front but by the air behind it, lasting seconds in higher yield detonations - the overpressure also falls as the blast restores itself to the Rankine-Hugoniot conditions (overpressure energy is transformed into dynamic pressure energy, thus weakening overpressure as well as dynamic pressure). *If DTRA were correct that only the front part (shock front) of a blast wave is relevant to delivery of energy and delivers only 1/2000 of the energy of the blast, then by analogy our eardrums and ship sails would be similarly so inefficient at picking up energy from the dynamic pressure of sound and the wind, respectively, that they couldn't work!* Notice that their computer codes in 2013 falsely EXCLUDED any absorption of energy by the blast in oscillating thousands of tons of reinforced concrete, causing damage (much larger, huge amounts of energy are required to actually destroy reinforced concrete by permanent deformation; the springy oscillations of a building in a gale or blast wave take up far less energy than actual destruction requires), contrary to what John von Neumann pointed out (that buildings are NOT rigid but absorb energy from the blast, decreasing the blast parameters like pressures and impulses as the blast propagates through a city, unlike desert or ocean in unobstructed terrain nuclar tests!) in the 1950 *Effects of Atomic Weapons* (removed by Glasstone from future editions, just as he removed the civil defence chapter from the 1977 edition!).

ABOVE: Appendix A of Glasstone's 1950 *Effects of Atomic Weapons* gives a specific calculated example that allows the absorption of blast energy by oscillating modern concrete buildings to be calculated: a reinforced concrete building of 952 metric tons, 75x75ft, 38 ft high (thus horizontal area of 265 square metres), resisting force 4 psi, is subjected to a peak overpressure and dynamic pressure loading of 32 psi (242,000 Pascals) decaying to zero in 0.32 second. Calculated peak deflection of middle of the building was 0.88 foot or 0.27 m (the top would be deflected twice this amount). Reinforced concrete is relatively ductile, but any cracking absorbs even more energy than the simple calculation of the kinetic energy of blast-induced oscillation. So the blast wave energy absorbed from the simple physics law E

The Effects of Atomic Weapons

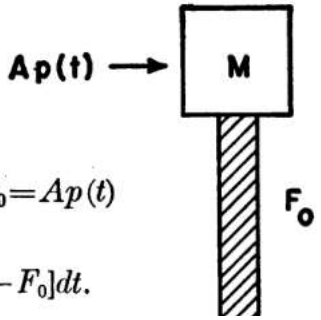
PREPARED FOR AND IN COOPERATION WITH THE U. S. DEPARTMENT OF DEFENSE AND THE U. S. ATOMIC ENERGY COMMISSION



igure 5.3. Behavior of blast wave upon striking cubical structure: (*a*) before striking the structure; (*b*) soon after striking the structure; (*c*) soon after passing the structure; (*d*) wave completely past the structure.

APPENDIX A[1]

AN APPROXIMATE METHOD OF COMPUTING THE DEFORMATION OF A STRUCTURE BY A BLAST WAVE



$$M\frac{d^2x}{dt^2}+F_0=Ap(t)$$

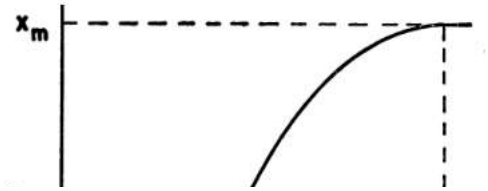
$$v=\frac{1}{M}\int_0^t [Ap(t)-F_0]dt.$$

3.20 In the preceding paragraphs, the di the air blast from an atomic bomb exploded ir In this section consideration will be given to th of burst of the bomb on the area of blast da extremely complex and can be solved only in manner. This is so for two reasons: first, th a military target can never be completely give plete analytical solution of even such a relat the behavior of a shock wave incident on a v has never been obtained for all angles. As w tion of the basic problem of shock reflection derived by a combination of theory and exp is, however, not readily adapted to yieldin better than an average sense in a more compl the detailed description of the target, not on odd shape, but they have the additional comp being rigid. This means that they do not r wave, but they also absorb energy from it at

3.21 The removal of energy from the b creases the shock pressure at any given dis detonation to a value somewhat below that the absence of dissipative objects, such as b

[1] This section is based on work by J. von Neumann and F. Rein Laboratory.

of such dissipation or diffraction makes it nec what higher values of the pressure than would a desired effect if there were only one struc rigid plane.



Glass Appe calcul

= Fx = PAx where P is pressure loading, A is exposed area of building being loaded, and x is the displacement (or more precisely from the initial form) of this load-supporting plastic spring equivalent to single-story structure.

Figure A.2. Mass supported on plastic spring equivalent to single-story structure.

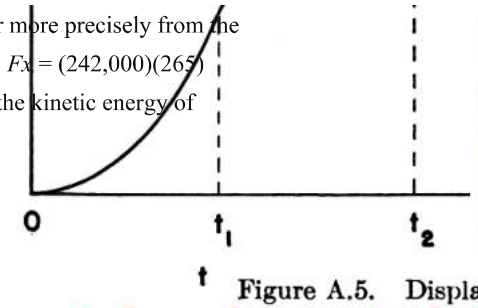
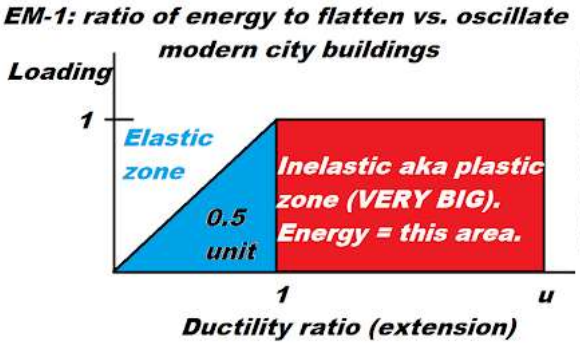


Figure A.5. Displacement of ce

Glasstone's 1950 *Effects of Atomic Weapons* explained the basis of blast attenuation clearly.

Appendix A then gives a specifical calculated example: a reinforced concrete building o 75x75ft, 38 ft high, resisting force 4psi, subjected to a peak overpressure and dynamic 32psi decaying to zero in 0.32 second. Calculated peak deflection of middle of the buildi



Total blast wave energy absorbed by a city building, divided into the blast energy that can be absorbed to merely oscillate (in the elastic zone) a building = blue plus red areas, divided into blue area

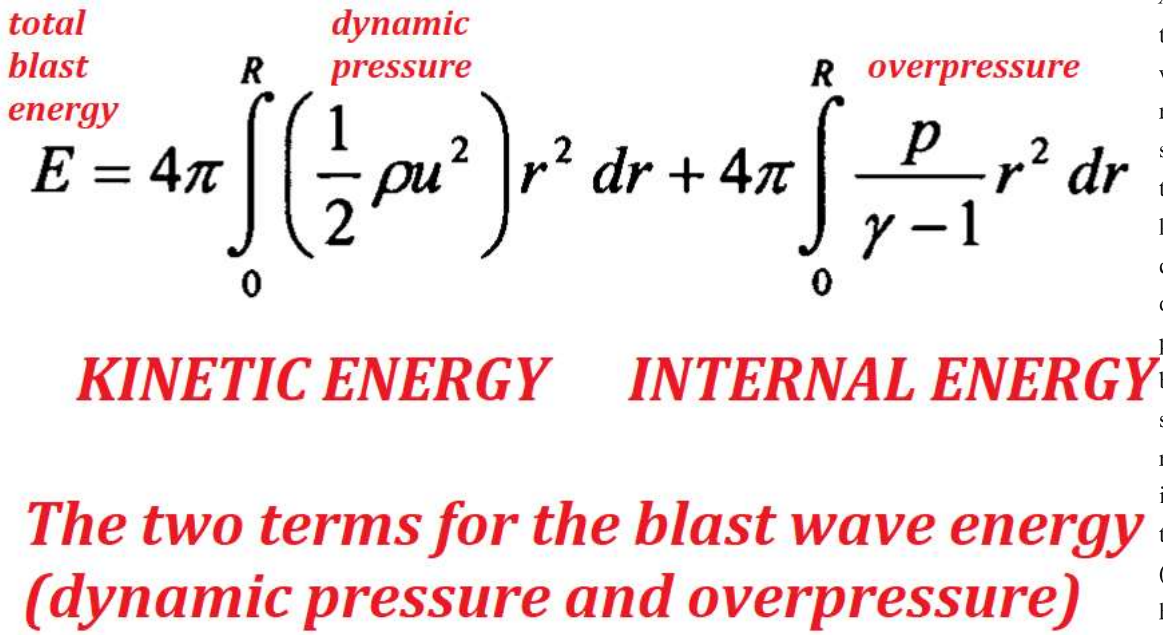
= [0.5 + (u - 1)] / 0.5

= 1 + 2(u - 1)

The resisting force of 4 psi used in the 1950 Glasstone book can be updated with the following static yield resistances for various modern city buildings using Table 15.6 on page 525 of the 1996 *Northrop Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1:* 3.0 psi and 0.3 second natural period of oscillation for 3-8 story reinforced concrete buildings (type 15.2.2), 1.25 psi and 0.3 second for brick houses (type 15.2.3), 0.5 psi and 0.25 second for wooden houses (type 15.2.5), or 2.0 psi and 0.6 second for 3-10 story steel-frame office buildings (type 15.2.10). The "nominal" ductility ratios (the ratios of displacement required for collapse/severe damage to the maximum elastic response before plastic response begins) for these four types of buildings are given by Northrop as 7.5, 4, 7.5 and 10, respectively. **The maximum amount of energy absorbed in destroying the buildings is simply the area under the curve of loading versus displacement before collapse. Since this relative area is 0.5 unit for the triangle shaped slope up to a ductility ratio of 1, and is roughly a constant height rectangle for the plastic zone from a ductility ratio of 1 up to the failure limit (severe damage/collapse of building), the ratio of total energy absorbed by a building in its destruction, to the maximum energy that can be absorbed in purely elastic oscillations by a buildings (up to ductility ratio of 1 unit) is simply [0.5 + (7.5 - 1)]/0.5, [0.5 + (4 - 1)]/0.5, [0.5 + (7.5 - 1)]/0.5, and [0.5 + (10 - 1)]/0.5, or 14, 7, 14, and 19, respectively, for those four building types.** It is to be noticed that the greatest amounts of plastic range energy absorption are for the most predominant two kinds of modern city centre buildings, namely reinforced concrete and steel frame multistory buildings. These buildings, with up to 8 and 10 stories, respectively, in these calculations, also have a cumulative effect in shielding free-field thermal and nuclear radiations.

The Effects of Atomic Weapons, 1950, on page 57 has a section written by John von Neumann and Fredrick Reines of Los Alamos (it is attributed to them in a footnote) stating clearly: "*the structures ... have the additional complicating property of not being rigid. This means*

that they do not merely deflect the shock wave, but they also absorb energy from it at each reflection. The removal of energy from the blast in this manner decreases the shock pressure at any given distance from the point of detonation to a value somewhat below that which it would have been in the absence of dissipative objects, such as buildings." Glasstone removed this from future (1957-77) editions, not because it is wrong (it isn't), but apparently because it debunks official nuclear lies used for strategic deterrence in the same way that gas and incendiary bombing effects was exaggerated in the 1930s to try to deter war!

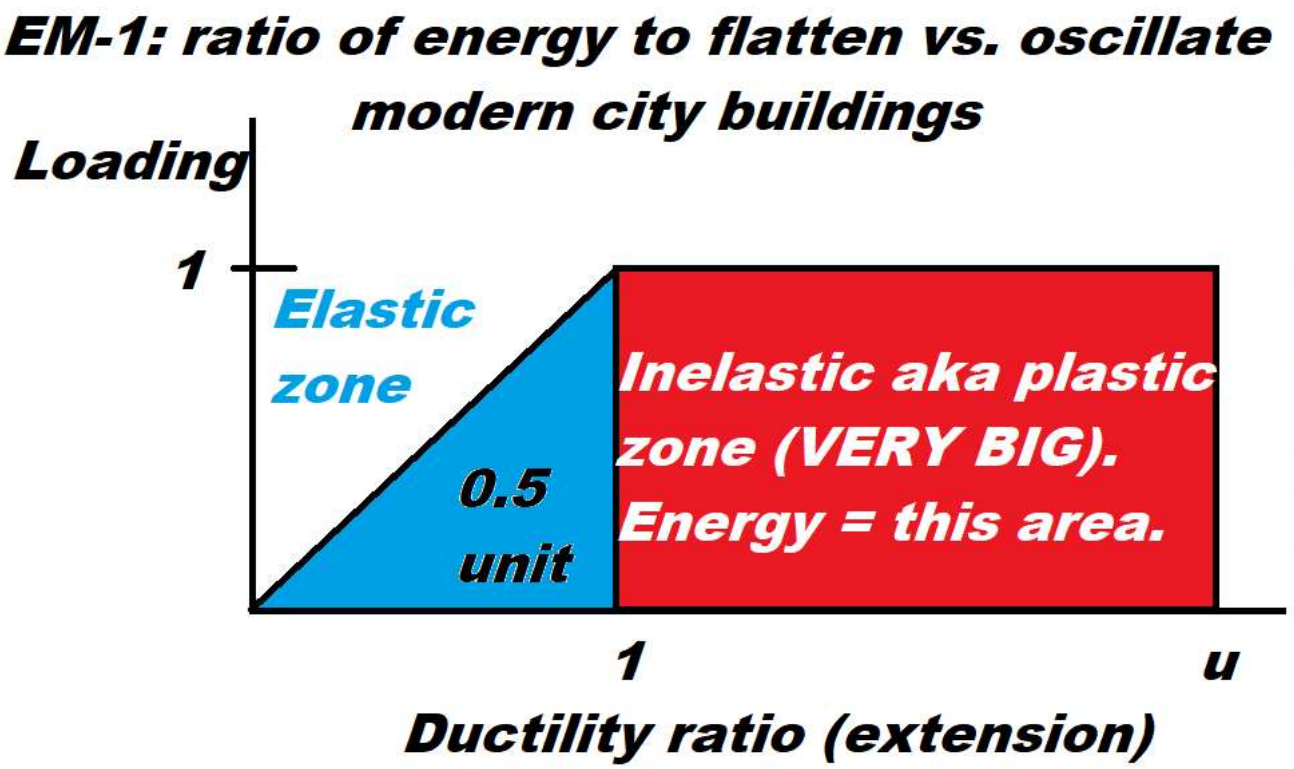


ABOVE: The two terms for blast wave energy. It's really very simple: the first term above is the kinetic energy contained in the dynamic (wind) pressure of the blast, while the second term represents the internal energy of the blast (manifested as heat and related static overpressure). So the theoretical basis for the calculation of blast energy absorption by a city is not rocket science, and it's not based on speculations or guesswork. **And this is not "new" either, since Brode's 1954 equations for calculating blast wave's with a computer include energy balance**, and you can with modern computers easily incorporate the irreversible energy losses due to the blast wave successively oscillating, one after another, the buildings with with it interacts as it travels outward in a modern city. **William G. Penney gives the real basis for calculating the energy loss due to blast damage in Hiroshima and Nagasaki in his 1970 paper, which contains numerous detailed, precise calculations and measurements showing how the act of causing destruction to steel and concrete, in addition to the mere oscillations of buildings, reduced the energy content of the blast and thus the pressure fell more quickly with distance in those cities**, than measured in unobstructed desert or ocean during his nuclear testing programme. (In **1985 John Malik of Los Alamos simply ignored in his report, LA-8819, all Penney's hard won facts from Hiroshima and Nagasaki**, without going into details at all. Glasstone and Dolan reference Penney's 1970 paper, but simply ignore its findings on blast attenuation in Hiroshima and Nagasak. So much for scientific progress! *Note also that Penney's 12 kt yield for Hiroshima is lower than the current estimate of 16 kt, implying even*

more blast absorption in Hiroshima than Penney found, because the unattenuated free field pressures from 16 kt will be greater than those from 12 kt!)

Now consider the energy absorption in the plastic region for reinforced concrete. The calculations of energy absorption in oscillating a building are for the small "elastic response" region of the pressure-displacement curve. But vast amounts of energy are absorbed beyond that elastic limit, and yet at pressures lower than required to make a reinforced concrete building collapse (*always ignored by ignorant shelter critics, as Lord Baker explained, for shelter design in his 1978 book which we reviewed in detail a few posts back*). There is a summary of the key building parameters America uses in calculating the effects of nuclear blast on buildings of various kinds in Table 15.6 on page 525 of Northrop's 1996 *Handbook of Nuclear Weapon Effects, Calculational Tools Abstracted from EM-1:* building 15.2.2 (3-8 story reinforced concrete, small window area) has a severe damage ductility ratio of 7.5, i.e. it fails and collapses (severe damage) when the displacement is 7.5 times the maximum elastic response. Put another way, the plastic limit for reinforced concrete is 7.5 times the elastic displacement limit. Northrop's figure 15.7 shows the extension versus applied pressure load. The energy absorbed in the elastic limit is a triangle terminating at a displacement of 1 ductility unit (units are extension/elastic limit extension), so it has an area of 0.5 units (energy absorption for oscillating the building, *see* ***diagram below***). But the plastic response is not a triangle but a unit high rectangle which starts at one unit and extends to 7.5 units (severe damage/collapse), its area is thus 7.5 - 1 = 6.5 units, so it absorbs 6.5/0.5 = 13 times as much energy as that used to oscillate the building elastically! So reinforced concrete buildings can absorb 13 times more energy in being damaged, than they can absorb in oscillating elastically. **The ratio of total energy absorbed to flatten the buildings, to the maximum energy that can be absorbed elastic oscillate it, is (6.5 + 0.5)/0.5 = 14. Thus, the total energy absorption by a building can be 14 times that involved in merely oscillating it!**

ABOVE: model of a building having a blast, the simple engineering graph from EM-1 showing the ratio of energy needed to total a building to that which merely oscillates it. The axes depict loading force and displacement, respectively, so the areas under the curve beautifully correspond to energy absorbed, allowing us to calculate the total energy needed to flatten a city very easily (from a simple, standard physics formula, energy $E = Fx$), in terms of multiples of the energy needed to just oscillate the buildings elastically. Northrop's data for other types of buildings are as follows: type 15.2.5 wood frame house has the same 7.5 ductility ratio for collapse, so it can absorb in plastic deformation 13 times the elastic oscillatory energy; type 15.2.3 brick house has a ductility ratio of 4 for severe damage, and a type 15.2.10 3-10 story steel-frame office building has a ductility ratio of 10 for severe damage. This is precisely Lord Baker's principle of the Morrison table shelter (for details, please see Lord Baker's 1978 book about the problems with explaining this to the bureaucratic nutters who don't understand the physics behind engineering, the brilliantly titled *Enterprise versus Bureaucracy*) where the *plastic deformation of steel is used to absorb many times more energy than it can absorb elastically.* In other words, it's the damage done (plastic deformation of reinforced concrete) that really absorbs vast amounts of blast energy, not the smaller energy absorption from elastic oscillations of a building! Northrop's table 15.6 shows that the reinforced concrete building, type 15.2.2, has a natural period of oscillation of about 0.3 second, and a static yield resistance of about 3 psi. Northrop's Figure 15.10 shows it has 50% probability of severe damage at 2.85 km from a 1 megaton surface burst on an ideal, unobstructed desert surface with no blast energy absorption by buildings intervening between that target and ground zero! For comparison, a similar 1 megaton surface burst in unobstructed desert is shown in Northrop's Figure 15.11 to have 50% probability of destroying a typical British brick house at 4.42 km ground range (50% severe damage probability), whereas Figure 15.18 gives a range of only 2.74 km for collapse of 3-10 story steel-frame buildings from a 1 megaton surface burst on unobstructed, open terrain.



Total blast wave energy absorbed b city building, divid into the blast ener that can be absorb to merely oscillate the elastic zone) a building = blue plu red areas, divided blue area

= [0.5 + (u - 1)] / (

= 1 + 2(u - 1)

[357]

THE NUCLEAR EXPLOSIVE YIELDS AT HIROSHIMA AND NAGASAKI

By LORD PENNEY, F.R.S.,
Imperial College

D. E. J. SAMUELS and G. C. SCORGIE
United Kingdom Atomic Energy Authority

(*Received* 13 *October* 1969)

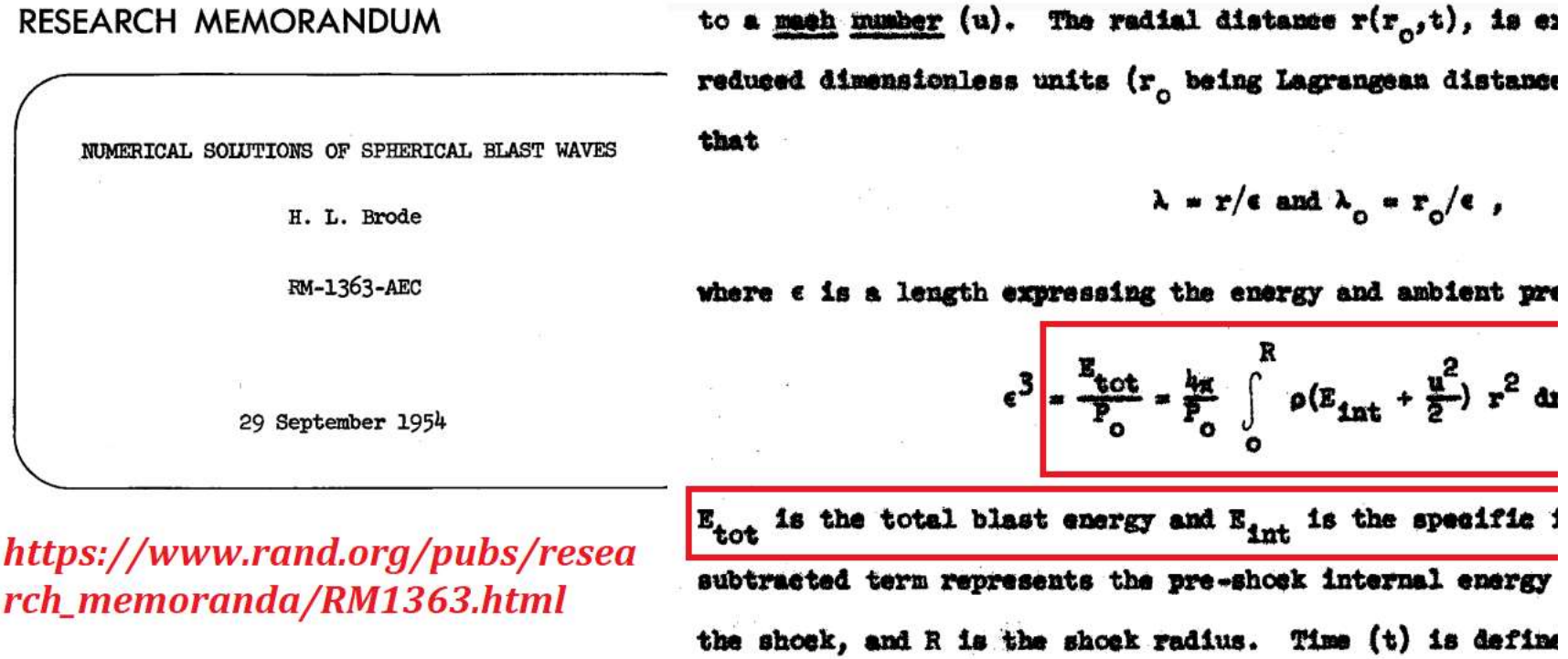
[Plates 2 to 9]

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The nuclear explosive yields at Hiroshima and Nagasaki have been calculated from measurements of the damage caused to some objects whose dynamical responses were simple enough to permit analysis. Examples include bent or snapped poles, squashed empty drums and cans, overturned memorial stones, some safe doors and the tops of office cabinets pushed in by the blast. The Hiroshima explosion was 12 ± 1 kilotons and the Nagasaki explosion was 22 ± 2 kilotons.

Vol. 266. A. 1177. (Price £2. 8*s*.; U.S. $6.25) 44 [Published 11 June 1970



RESEARCH MEMORANDUM

NUMERICAL SOLUTIONS OF SPHERICAL BLAST WAVES

H. L. Brode

RM-1363-AEC

29 September 1954

https://www.rand.org/pubs/research_memoranda/RM1363.html

to a mesh number (u). The radial distance $r(r_o,t)$, is e
reduced dimensionless units (r_o being Lagrangean distanc
that

$$\lambda = r/\epsilon \text{ and } \lambda_o = r_o/\epsilon ,$$

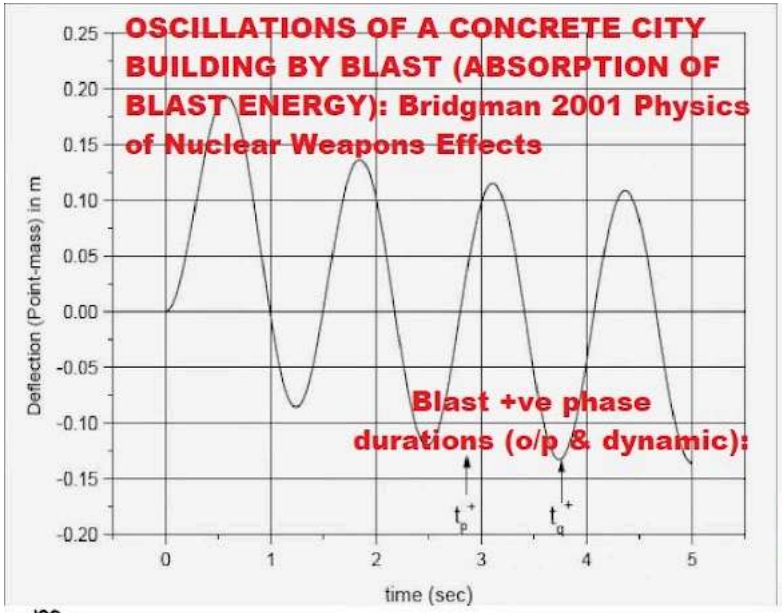
where ϵ is a length expressing the energy and ambient pr

$$\epsilon^3 = \frac{E_{tot}}{P_o} = \frac{4\pi}{P_o}\int_o^R \rho(E_{int} + \frac{u^2}{2})\, r^2\, d$$

E_{tot} is the total blast energy and E_{int} is the specific
subtracted term represents the pre-shock internal energy
the shock, and R is the shock radius. Time (t) is defin

In fact DTRA and its predecessors back to General Groves of the Manhattan project have has been covering-up the facts determined at Hiroshima in order to foster a delusion that strategic nuclear bombing against cities can work, despite failing. Anyone can simply move people out of cities (as the UK did with kids in Operation Pied Piper, 1 Sept. '39) before declaring war, and then your entire pathetic "countervalue strategic" anti-city deterrent is flushed straight down the pan! This undermines **credible nuclear deterrence, which requires tactical nuclear weapons to prevent the invasions that set off both world wars (Belgium '14, Poland '39).** It Ukraine had that it wouldn't be in the situation it's now in. Nuclear disarmament didn't make it safe. DUH! (And no, Mr "Scientific American", Hitler did *not* send the luftwaffe to bomb the kids being evacuated from London on 1 September 1939!)

Professor Bridgman's Introduction to the ***Physics of Nuclear Weapons Effects*** can be used to demonstrate the exaggerations in Glasstone's *Effects of Nuclear Weapons* when Glasstone's free-field (unobstructed terrain) nuclear effects predictions from desert and ocean nuclear tests are improperly applied to concrete cities. Bridgman, for instance, considers a building with an exposed area of 163 square metres, a mass of 455 tons and natural frequency of 5 oscillations per second, and finds that a peak overpressure of 10 psi (69 kPa) and peak dynamic pressure of 2.2 psi (15 kPa) at 4.36 km ground range from a 1 Mt air burst detonated at 2.29 km altitude, with overpressure and dynamic pressure positive durations of 2.6 and 3.6 seconds, respectively, produces a peak deflection of 19 cm in the building about 0.6 second after shock arrival. **The peak deflection is computed from Bridgman's formula on p. 304.** This 19 cm computed maximum deflection allows us to estimate how much energy is permanently and irreversibly absorbed from the blast wave by a building (if damaged, additional energy is absorbed and is transformed into slow-moving - relative to the shock front velocity - debris which falls to



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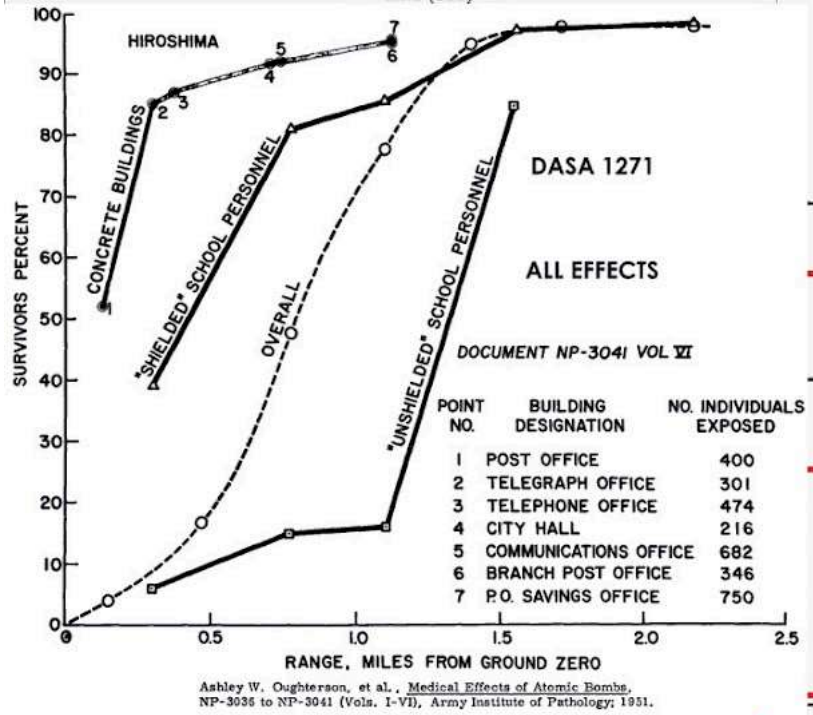
The Circulation of this paper has been strictly limited. Mr Shath

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SECRET

Some Aspects of Shelter and Evacuation P
to meet H-Bomb threat

WWII Morrison shelter co-inventor (with Lord Baker), Edward wrote this Secret 1954 H bomb survival report for Strath's civ



Ashley W. Oughterson, et al., Medical Effects of Atomic Bombs, NP-3036 to NP-3041 (Vols. I-VI), Army Institute of Pathology; 1951.

Table 5

Deaths from 1000N bombs after evacuation of 5 mile radi for London and 3 mile radius for other cities. Evacuee accommodated in surrounding annulus where they and the inhabitants are provided with shelter with a safety rat

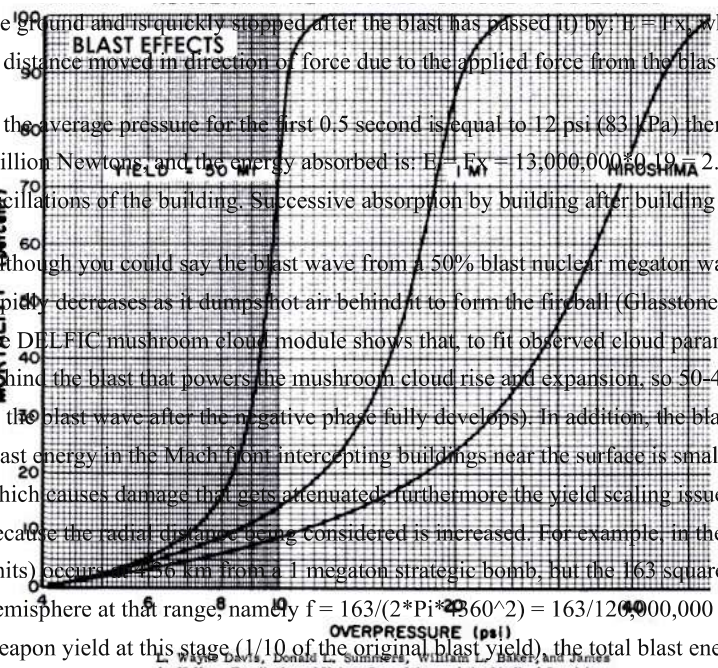
20 Mt

City	Position of bomb		
	Central	2 miles from centre	In posit to caus maximum d
London	0	0	261,0
Birmingham	0	56,000	155,0
Glasgow	0	64,000	152,0
Liverpool	0	67,000	152,0
Manchester	0	62,000	151,0
Total	0	249,000	871,0

It will be seen from Tables 4 and 5 that, with this sch

DC-P-1060 **NONSEISMIC REINFORCED-CONCRETE BUILDINGS**

the ground and is quickly stopped after the blast has passed it) by: E = Fx, where F is force (i.e. product of total pressure and area) and x is distance moved in direction of force due to the applied force from the blast wave.



If the average pressure for the first 0.5 second is equal to 12 psi (83 kPa) then the average force on the building during this time is 13 million Newtons, and the energy absorbed is: E = Fx = 13,000,000*0.19 = 2.6 MJ, which is removed from the blast wave in the form of oscillations of the building. Successive absorption by building after building rapidly absorbs blast energy in this way.

Although you could say the blast wave from a 50% blast nuclear megaton warhead containing 2.1 x 10^15 Joules, the blast wave energy rapidly decreases as it dumps hot air behind it to form the fireball (Glasstone omits the fireball energy partition after blast breakaway, but the DELFIC mushroom cloud module shows that, to fit observed cloud parameters theoretically, fully 45% of the yield is hot air dumped behind the blast that powers the mushroom cloud rise and expansion, so 50-45 = 5% of total yield (or 1/10 of original blast yield) remains in the blast wave after the negative phase fully develops). In addition, the blast forms a 2-d hemisphere so that the percentage of the total blast energy in the Mach front intercepting buildings near the surface is small and gets smaller as the blast propagates. It is only that part which causes damage that gets attenuated. Furthermore the yield scaling issue increases the building shielding effect for larger yields, because the radial distance being considered is increased. For example, in the example above, 10 psi peak overpressure (69 kPa in SI units) occurs at 4.56 km from a 1 megaton strategic bomb, but the 163 square metres of the building is only a small fraction, f, of the blast hemisphere at that range, namely f = 163/(2*Pi*4560^2) = 163/130,000,000 = 1.37*10^{-6}. So if the blast still contained 5% of the total weapon yield at this stage (1/10 of the original blast yield), the total blast energy striking the building's surface area would be just (2.1 x 10^14)* 1.37*10^{-6} = 2.9*10^8 Joules, proving that the oscillations of the building removed 2.6MJ of 290MJ blast energy intercepted, nearly 1%, which is a similar fraction to Penney's finding in Hiroshima.

You get additional, greater, energy loss due to damage done to buildings close to the fireball. For n such buildings in a radial line, the cumulative removal of blast energy fraction is: exp(-2.6n/290), which is *greater* for the larger blast damage distances in built up areas predicted for effects of higher yields! So increasing the yield increases the shielding for any given free-field pressure (the distance of which scales up with yield)!

Even with wooden 1-storey houses predominating in Hiroshima, Lord Penney who took away the overpressure debris (crushed petrol cans, etc) for analysis in England in 1945 found the blast energy at Hiroshima decreased exponentially due to blast attenuation caused by damage done, by comparing his results to the free-field Maralinga desert values for British nuclear tests without a precursor. This was all ignored by Uncle Sam (Glasstone)!

We have already given in many posts extensive evidence proving that concrete buildings in Hiroshima and modern cities absorb thermal, nuclear and blast effects in a way totally ignored by Glasstone's unobstructed desert analysis. Strategic nuclear deterrence is thus bunk, if based on nuclear test effects data from unobstructed desert or open ocean. We need tactical nuclear deterrence to stop invasions and the use of force, not an incredible threat of bombs on cities, which is analogous to the gas and incendiary bombing exaggerations of the 1920s and 1930s which failed to deter WWII. The exaggerations were made by both lying disarmers (to scare people into disarmament) and by lying proponents of aerial bombing in war (to scare enemies into surrender). The resulting pseudo "consensus of expert opinion" from both groups had tragic consequences. Strategic bombing, megatons of ~100 kg high explosive on Germany, equivalent to a large nuclear attack however you scale the megatonnage (by the 2/3 power of blast yield for peak overpressure over unobstructed terrain, or by an even

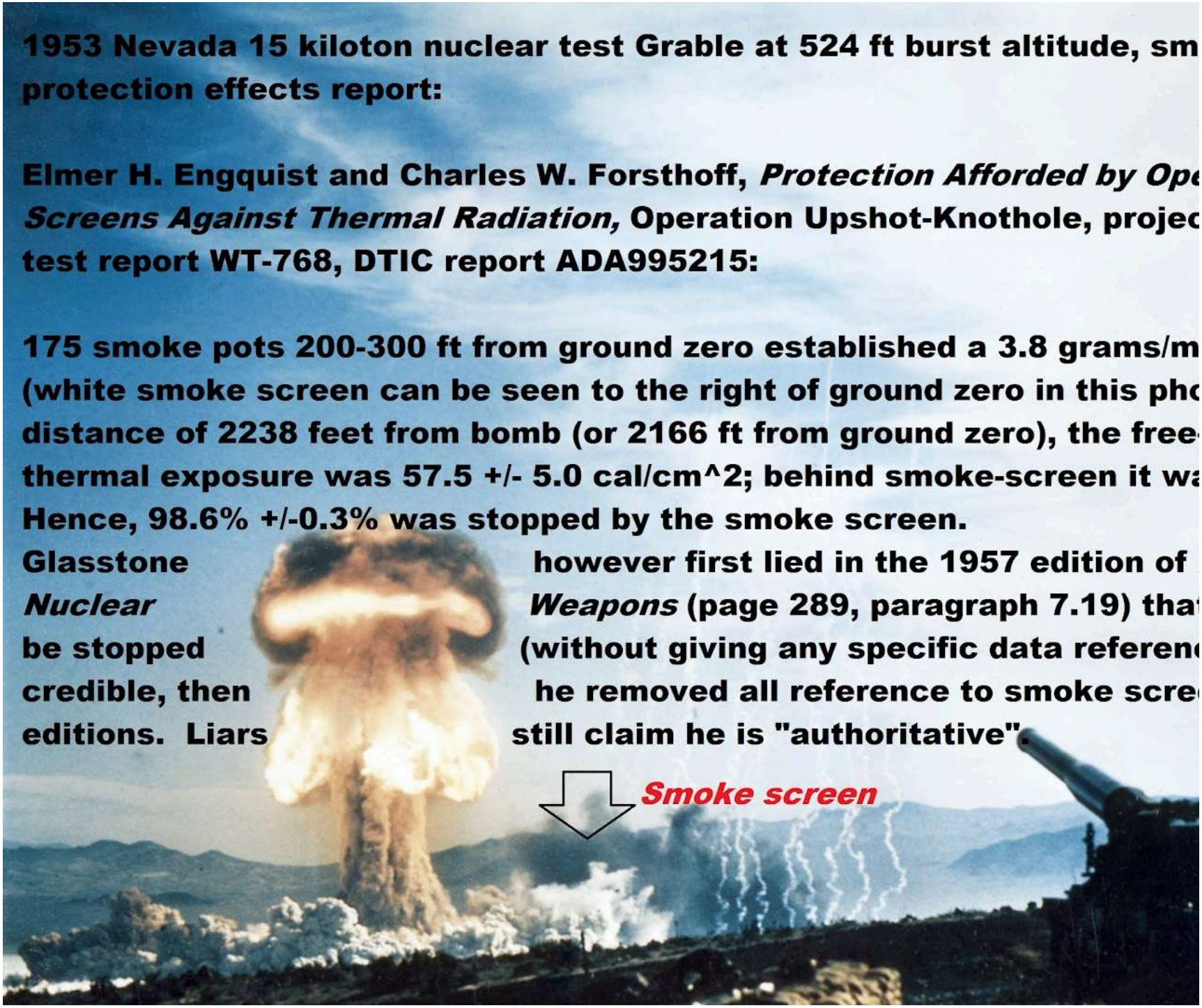
weaker function of yield for initial nuclear radiation), also failed to produce military results when civilians were bombed. **The two low yield nuclear weapons dropped over mostly wooden houses in Japan did not produce the results publically claimed (for propaganda) for modern concrete cities.** We've been blogging this for years, ignored by the loons who prefer anti-nuclear lies about strategic nuclear deterrence!

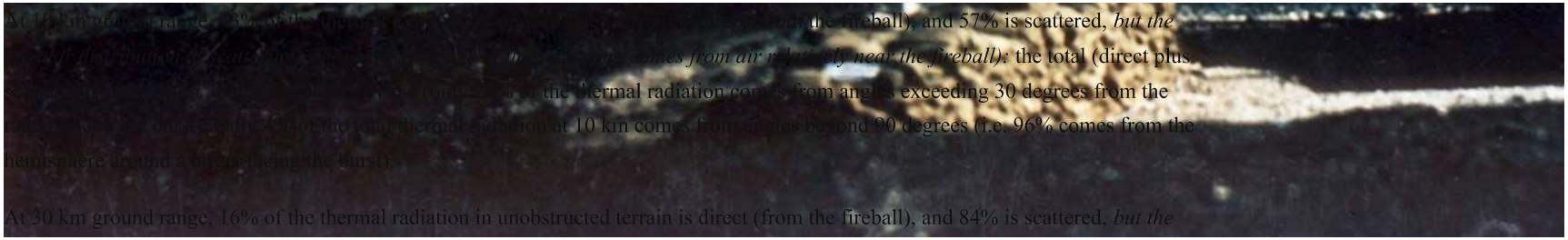
So to correct Glasstone for urban areas:

(1). Simply use **Lord Penney's exponential attenuation formula from Hiroshima to reduce peak overpressures in cities: exp(-R/3.25) for R being radial distance through a city in kilometres**. This reduces peak overpressure by 50% at 2.2 km. (Obviously precise effects depend on details, but this is a "baseline" for minimal blast attenuation, in cities with predominantly wood frame buildings.)

(2). Simply use **George R. Stanbury's formula for predicting the thermal flash shadowing, by calculating the number of exposed upper floors that can geometrically "see" the fireball as a function of range, so that the number of computed flash burns correspond to the number of windows that can see the fireball (e.g. for 50 ft wide streets, 3 miles from a 1 megaton surface burst, only the highest floor can "see" the fireball since the angle from the top of the fireball to building top artificial skyline is 13.5 degrees; if the buildings are on average 10 floors high, the percentage burns and fire risk is therefore 1/10 for one side of a building with 4 sides, i.e. 1/40 which is smaller than the 1/10 assumed by some simplistic propaganda; but you then get into the issue of the size of the windows and whether the people inside are protected by shadows from walls or furnishings or internal office cubicle partitions or even other people in between the target and the fireball in the office, all of which reduce the simplistic "theoretical" estimates of the number of people burned**, instead of assuming that no buildings or screening exists at all as in anti-nuclear propaganda for so-called "arms control" (war via appeasement/disarmament as in the 1930s). Stanbury points out there, and in his August 1962 Restricted UK Home Office Scientific Advisory branch *Fission Fragments* article on *Fires from nuclear weapons*, that to produce firestorms in Germany - the allies tried hard to achieve this in 1943 to end the war (and firestorms produce the associated soot clouds for climatic "nuclear winter" effects hype) you needed 50% of buildings to be initially ignited, which was only possible in the (now burned and gone) medieval wooden areas of Hamburg and **Hiroshima (due to blast-overturned charcoal braziers in wooden houses in Japan, not the thermal flash which was obstructed by rooms and other buildings). Stanbury's studies of the thermal flash shielding in Liverpool and Birmingham showed that the thermal radiation is shielded to such an extent you simply can't get to within an order of magnitude of that 50% ignition incidence needed for a Hamburg style intense firestorm (or, therefore, nuclear winter due to Hamburg type firestorm soot clouds penetrating the stratosphere)!**

The effect of scattered thermal radiation diffusing into shadows was insignificant at Hiroshima and Nagasaki, where burns from thermal radiation were only received in an unobstructed radial line from the fireball, so that any shielding provided virtually complete protection from thermal flash. The 110 Castle-3 shot at Bikini Atoll in 1954 was fired during a moderate rainstorm to obtain data on the reduction of blast and thermal effects by rainfall. There are no films that show the fireball because the water content of the air absorbed the thermal and visible transmission. Heavy rain or fog absorbs the thermal radiation locally around the fireball, rather than creating a large amount of dangerously wide-angle scattered radiation at great distances. Northrop's 1996 *Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1,* gives data for Pacific test conditions in Figure 6.39 on page 248, on the effect of scattered thermal radiation from a burst at 1 km altitude, at various distances and for different fields of view:


1953 Nevada 15 kiloton nuclear test Grable at 524 ft burst altitude, sm
protection effects report:
Elmer H. Engquist and Charles W. Forsthoff, *Protection Afforded by Ope*
Screens Against Thermal Radiation, Operation Upshot-Knothole, projec
test report WT-768, DTIC report ADA995215:
175 smoke pots 200-300 ft from ground zero established a 3.8 grams/m
(white smoke screen can be seen to the right of ground zero in this pho
distance of 2238 feet from bomb (or 2166 ft from ground zero), the free
thermal exposure was 57.5 +/- 5.0 cal/cm^2; behind smoke-screen it wa
Hence, 98.6% +/-0.3% was stopped by the smoke screen.
Glasstone however first lied in the 1957 edition of
Nuclear *Weapons* (page 289, paragraph 7.19) that
be stopped (without giving any specific data referenc
credible, then he removed all reference to smoke scre
editions. Liars still claim he is "authoritative".
Smoke screen



At 10 km ground range, 2% of the thermal radiation in unobstructed terrain is direct (from the fireball), and 57% is scattered, *but the angular distribution of scattering is extreme (most of the scattering comes from air relatively near the fireball):* the total (direct plus scattered) is 59% for a 40 degrees field of view (only 41% of the thermal radiation comes from angles exceeding 40 degrees from the radial line to the burst). Only 4% of the total thermal radiation at 10 km comes from angles beyond 90 degrees (i.e. 96% comes from the hemisphere around a target facing the burst).

At 30 km ground range, 16% of the thermal radiation in unobstructed terrain is direct (from the fireball), and 84% is scattered, *but the angular distribution of scattering is not extreme (most of the scattering comes from air relatively near the fireball):* the total (direct plus scattered) is 70% for a 40 degrees field of view (only 30% of the thermal radiation comes from angles exceeding 40 degrees from the radial line to the burst). Only 6% of the total thermal radiation at 10 km comes from angles beyond 90 degrees (i.e. 94% comes from the hemisphere around a target facing the burst).

Northrop's 1996 *Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1,* also gives graphs of the thermal radiation spectrum, showing differences with burst altitude and yield. Figure 6.19 shows that a 1 kt surface burst gives a thermal spectrum which peaks at 1.1 micron (Planck radiating temperature = 2000 K), compared to 0.4 micron (Planck radiating temperature = 5000 K) for 1 kt air bursts at 1-30 km altitude. Figure 6.21 shows there is much less difference between the spectra for surface and air bursts for 1 megaton yield: 0.70 micron peak in the thermal spectrum (Planck radiating temperature = 3800 K) for a megaton surface burst, compared with 0.52 microns (Planck radiating temperature = 4500 K) for a 30 km altitude megaton burst.

Northrop's 1996 *Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1,* in Figure 16.10 uses hydrodynamic calculations to prove that the maximum fire wind velocity in a firestorm is only a weak function of the fire intensity, for example a fire with a radius of 10 km will create a maximum fire wind velocity of 17 m/s for a fire intensity of 25 kW/m^2, but this only increases to 36 m/s if the fire intensity is increased to 240 kW/m^2.

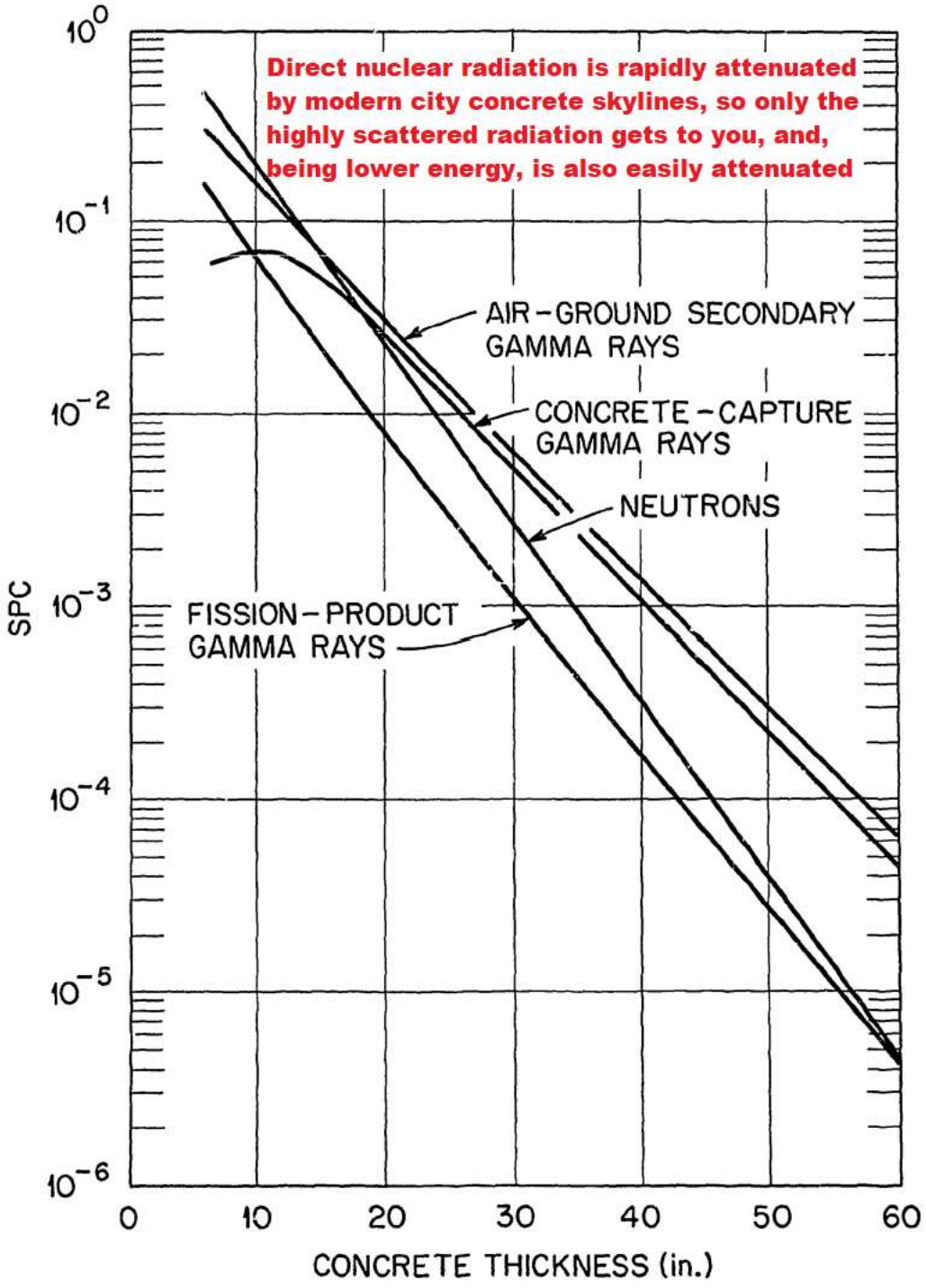
Remember also that nuclear test evidence shows that the risk of clothing or other items burning is less for real levels of office humidity than for target materials left to dry out in the Nevada at the lower humidity of Nevada nuclear tests like Encore; clothing **shields thermal radiation and increases burns energy requirements contrary to Glasstone**.

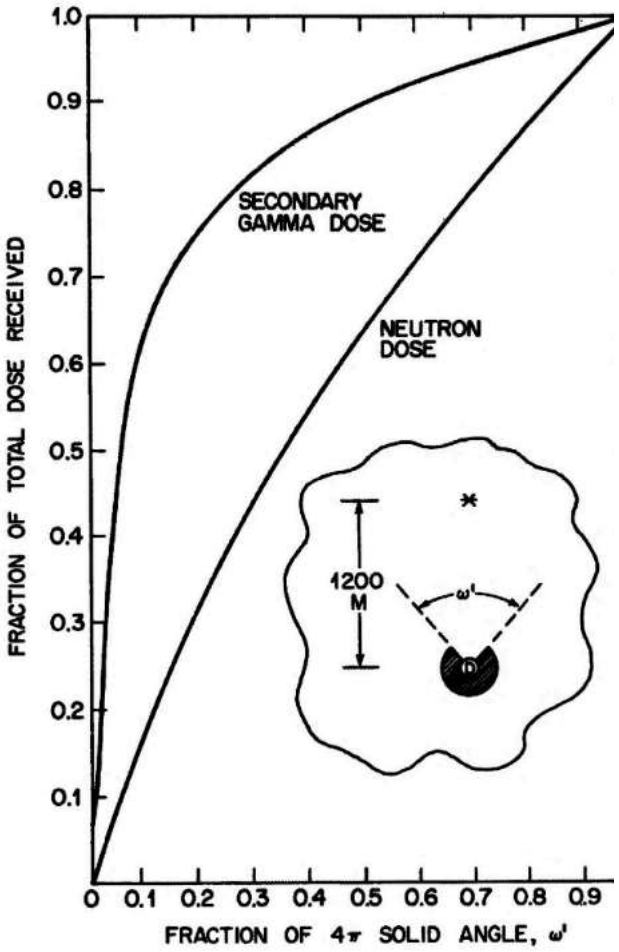
Northrop's 1996 *Handbook of Nuclear Weapon Effects: Calculational Tools Abstracted from EM-1,* Table 14.5 on page 501 also points out that while people standing nude 2 metres behind glass windows watching the nuclear blast approach them will receive a 50% median dose of 3 glass fragment abdominal wall penetrations at a peak overpressure of 7 psi, it takes 15 psi if they are wearing clothing! If they duck and cover, they will can avoid the directional flying glass (and the thermal burns) completely. What Northrop doesn't tell you is that in a built up city, the dynamic pressure needed to energise those glass fragments to lethal velocities don't exist 2 metres behind glass windows in general; only behind those windows facing the fireball with an unobstructed view. Other windows on all all sides of the building will certainly break if the overpressure is high enough, but the blast wind (dynamic pressure) is directional and so the windows will not be blasted inwards with the same speed (at lower pressures they can even fail in the negative phase and be sucked outwards, with no hazard whatsoever to occupants!). Northop (1996) in chapter 14 on personnel casualties gives very high mortality rates based on unprotected head impacts, particularly for standing personnel, e.g. 5 psi for 50% mortality for people standing in buildings swept through by blast

winds. Again, this assumes the blast winds are not obstructed and attenuated by the other surrounding buildings in a city, but it also suggests a simple civil defense precaution to accompany duck and cover in a crisis situation: bicycle helmets can be kept under emergency table "shelters" and can be put on quickly before the blast arrives, after a nuclear explosion, to minimise head trauma from flying debris or bodily translation and impact for high dynamic pressures and long blast durations. With duck and cover, you can avoid wind drag or injury from flying debris and you can keep away from a blast reflecting surface, then Northop shows in Figures 14.2 and 14.3 that you have 50% chance of surviving 37 psi peak overpressure from 1 megaton if you are lying down perpendicular to the direction of approach of the blast wave, or 62 psi if your are lying parallel to the direction of the blast (i.e., lying down facing away from the flash). In other words, blast is then very survivable!

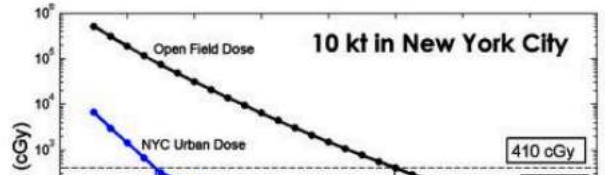
(3). **Simply allow nuclear radiation doses in modern cities to be attenuated severely by a factor of about 100 (from the 2011 Los Alamos report unobstructed desert "free field" initial nuclear radiation dose data study for the shadowing by intervening the buildings of in New York City)** - before you include the actual shielding by a building people are in, which is much better for INR than Glasstone claims, because essentially ALL of the urban area outdoor 100-fold reduced radiation dose is SCATTERED, not direct, so it is energy-degraded and not the highest-energy direct gamma and neutrons (which are attenuated severely on the transit through all the buildings in the radial line from the bomb)! Putting in "/100" to the computer formulae is not rocket-science! Simple. Nothing in the universe is perfect, but this correction is easy, and gives a minimal baseline for realism for the urban effects of nuclear weapons, lacking in all anti-nuclear diatribes. For higher yield weapons, the increased ranges for given radiation doses will lead to increased attenuation, since at increased ranges there will be more concrete buildings intervening in the the radial line from fireball to target, and although scattered radiation builds up at greater distances, it has lower energy than unscattered radiation and therefore is less penetrating (easier to shield). The most penetrating and wide-angle scattered nuclear radiation dose is from neutrons, but for the full range of 13 different nuclear weapon designs in the 1984 EM-1, the effective mean free-path for the surface burst neutron dose over the distance 1-2 km only ranges from 189 to 221 metres (the latter being weapon type 13, the neutron bomb). (The neutron dose will essentially completely arrived - except for a small portion due to delayed neutrons from fission products like bromine-90 - before blast damage occurs to those buildings lcated near the crater.) Glasstone is widely ignored when pointing out in one table in the last chapter - contrary to many free-field charts and graphs - that 50% survival in modern concrete buildings in Hiroshima occurred at 0.12 mile for the 16 kt air burst at 600 m; this scales up by the cube-root scaling law to predict 50% survival at 1.2 miles from a 16 megaton air burst at 6 km altitude; initial radiation dose distances scale as a weaker function of yield than blast.

Additionally, the blast effects data (relating say overpressure to casualties) is way off in left-wing anti-nuclear propaganda. The actual Hiroshima and Nagasaki data proves **much greater survival than bogus theoretical assessments: in reality, 100% people are not nude standing behind windows facing the blast while wearing roller-skates to ensure they are frictionlessly blown straight out of the 42nd floor by a 3psi blast, and killed by the impact from the gravitational fall to the pavement 420 feet below. Instead of the 1979 US Office of technology assessment claim that 50% of people are killed at 5psi, in Hiroshima and Nagasaki more than twice this was needed for the same effect, even without effective duck and cover or taking shelter (CLICK HERE FOR REPORT CONTAINING THE EVIDENCE FOR THIS)**. Although blast duration increases with yield, this has no effect if the pressure is below the threshold for damage, so **Glasstone's curves are wrong for not reverting to cube-root scaling at high yields (impulse rules at low yields, peak pressures rule at high yields; Glasstone ignores this transition in his nonographs for building damage, which is corrected by by the secret EM-1; report Dirkwood Corp report DC-P-1060 found that the blast mortality effect was 50% at 32 psi**





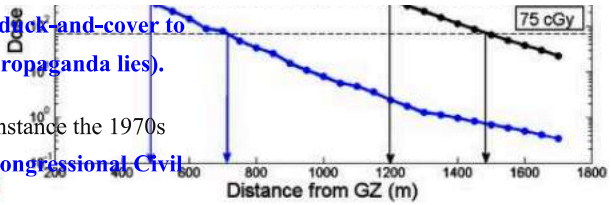
Effect of neutron and gamma ray scatterin on the angular distribution of initial radiati dose, 1.2 km from thermonuclear explosio FROM: J. A. Auxier, et al., *Nuclear Weapo Free-Field Environment Recommended for Initial Radiation Shielding Calculations,* ORNL-TM-3396.



peak overpressure in modern non-seismic concrete buildings in Hiroshima, or 17 psi for 1 megaton, without duck-and-cover to reduce exposure to flying glass debris and blast wind drag - contrast this 5 psi to anti-nuclear disarmament propaganda lies).

FROM: L. G. Mooney, *Calculations of Weapons Radiation Doses in Single Compartment Above-Ground Concrete Structures*, Radiation Research Associates, Inc., RRA-M93 (November 26, 1969).

RIGHT: K. Millage, *Modelling the Effects of Nuclear Weapons in an Urban Setting*, Applied Research Associates (2011) found 100-fold dose reduction:



For the correct application of Hiroshima's lessons to modern higher yield nuclear war threats from Russia, see for instance the 1970s congressional testimony of T. K. Jones of Boeing Corporation in hearings linked **HERE (February-March 1976 congressional Civil Defense Review)**, and **HERE (November 1976 Nuclear War Survival hearings)**. Whenever the factual evidence surfaces, it is **falsely labelled "controversial" or "wrong" by lying mainstream media charlatans, fraudsters, and bigoted snake oil salesmen, and ignored for political left-wing propaganda purposes, or the "arms controllers" simply tell lies claiming falsely that civil defense is a joke, just as they did in the 1930s (when civilian gas masks were discounted as a simple solution to deter Hitler from dropping his gas bombs on cities for a knockout blow!) and 1970s, debunked by T. K. Jones**' famous 1979 letter to congress, extract below, which led to his being appointed Deputy Under Secretary of Defense for Strategic and Theater Nuclear Forces on June 1, 1981 under the new Reagan Administration, which aimed to win the Cold War by science and technology, not lose freedom via Russian nuclear coercion. Note that while the ACDA - *i.e. the U.S. Arms Control and Disarmament Agency, whose faked nuclear weapons/war effects calculations lay behind the disastrous 1970s nuclear parity SALT farce which now results in dictators again intimidating democracies as was the case in the 1930s due to disarmament scams for "peace" which led to WWII* - claimed 50% of people are killed at 5 psi peak overpressure from a megaton, while in fact U.S. classified Defense Nuclear Agency research showed that Russian public shelters were built to take 150 psi i.e. surviving within the 0.83 mile fireball radius of a 5 megaton surface burst, Russian apartment basement shelters were built to survive 60 psi, and good Russian improvised expedient shelters built outside cities survived 40 psi in American blast tests and gave upwards of 200 fallout protection factor (i.e., reducing the maximum hotspots of 20,000 rads to a survivable 100 rads and averting casualties).

ACDA disarmament bigots simply lied in the traditional "H. G. Wells" 1930s-sci-fi-style of disarmament fantasy, in testimony to congress, about the motivation and the detailed work of those people who disproved them, they ignored the classified data on blast and fallout shielding in their "effects" models, or their calculations assumed that people failed to use fallout shelters in order to deceptively "reduce" fallout protection factors by a factor of 7, by simply assuming people would go outside to be exposed to unshielded fallout (**like most people, they also massively exaggerated the mean gamma ray energy of fallout during the sheltering period, as we have previously exposed, which is debunked by the measurements after the Redwing Zuni and Tewa tests**) - they also lied that Jones didn't include fallout casualties when in fact he did include fallout correctly, finding that you don't get fallout casualties with the high degree of radiation shielding in shelters, *an exact analogy to the situation where the 100,000 protection factor of activated charcoal gas mask filters gave no gas casualties in 1938 research, and disarmament bigots tried to claim that was some kind of ignorant dismissal of the horrors of true gas war so they would "arbitrarily" assume that only say 50% of people put on gas masks in order to then falsely claim that gas masks were somehow "calculated" to only work for 50% of people - i.e. only those assumed to be actually wearing them! - a travesty and abuse of scientific modelling (like lying that you have done detailed calculations proving that car seat belts make no difference in accidents, when in fact you have merely assumed that nobody wears the seat belts!), when in fact the true excellence of gas mask protection was proved to successfully deter Hitler from using gas on civilians with gas masks, saving millions contrary to the hate attacks on civil defence by disarmament propaganda deceivers (who recognised that civil defence made deterrence credible, and so was a threat to their bigoted plans for peace at any price):*

BOEING AEROSPACE COMPANY
P.O. Box 3999
Seattle, Washington 98124

A Division of The Boeing Company

January 22, 1979

The Honorable William Proxmire
Chairman, Senate Banking Committee
United States Senate
Washington, D.C.

Dear Senator Proxmire:

Your request in recent hearings for an explanation of the discrepancy between our estimates and ACDA's estimates of Soviet losses in a nuclear war is clearly important and warrants a clear and candid answer. Unfortunately, Mr. Spurgeon Keeny, the Deputy Director of ACDA, chose to incorrectly represent our work. I appreciate the opportunity to set the record straight and to point out what we have determined to be the factors contributing significantly to the differences between the two estimates.

Population Protection

In his attempt to discredit our work, Mr. Keeny incorrectly inferred that this work was based on mere "assumptions" and "simple ratios." In fact, our approach was to analytically duplicate the provisions of the Soviet Union's civil defense plans and preparations. This effort was supported by extensive research into Soviet literature, use of rigorous system engineering functional analysis techniques, and a program of testing to establish the effectiveness of Soviet shelters and industrial protection methods. Moreover, the impact of uncertainties and possible imperfections in Soviet execution of their plans were examined parametrically.

Mr. Keeny's statement that we "assumed there would be no casualties from fallout" is false. The record of hearings before the Joint Committee on Defense Production (November 17, 1976) clearly shows that the data presented counted as fatalities all persons receiving a radiation dose of 200 rads or more. Moreover, our more recent studies of which ACDA is aware have treated this value parametrically.

By protecting their people against fallout, the Soviets can substantially limit their population fatalities. Figure 1 shows that even very rudimentary protection, such as basements or expedient shelters, is sufficient to minimize fatalities. In the ACDA analysis, the majority of the evacuees were assumed to have a protection factor of 10 or less, which results in enormously high fatalities compared to what the Soviets could achieve if they carry out even the most modest of the measures outlined in their plans and literature.

Assumption Variables Versus U.S.S.R.
Civil Defense Effectiveness
Degree of Fallout Protection for Evacuees and Rural Population



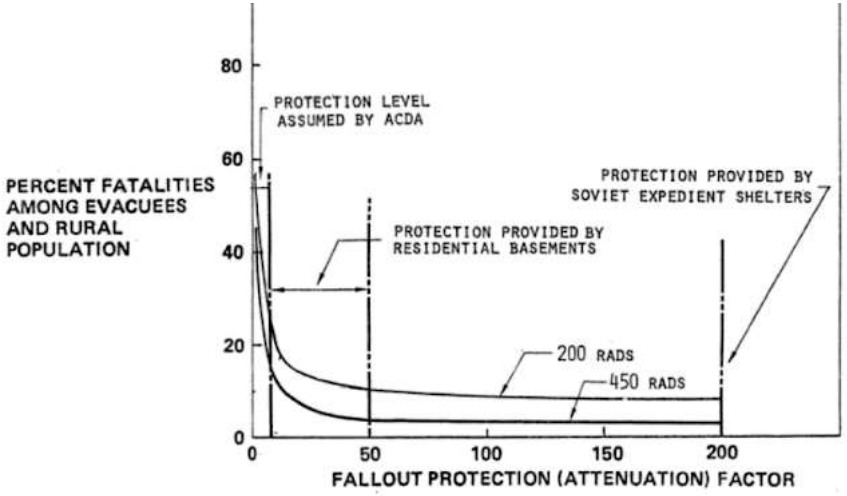


FIGURE 1

Mr. Keeny has incorrectly characterized our treatment of blast protection. In their cities, the Soviets are building industrial shelters and apartment basement shelters with a blast resistance of at least 150 psi and 60 psi, respectively. These ratings were calculated for the Defense Nuclear Agency based on knowledge of construction details such as beam dimensions, concrete quality, and structural reinforcement size and placement. The Soviet designs for expedient shelters have been built and exten-

ABOVE: extracts from the famous 1979 T. K. Jones Boeing Corporation letter, page 2, debunking "arms control" nuclear weapons effects liars in detail. This really exasperated my dad, John B. Cook, who was a Civil Defence Corps instructor in the 1950s, but was old enough to live through the 1930s appeasement era when Philip Noel-Baker repeated lied on the effects of gas bombs, claiming gas masks will never work, because babies and the elderly won't put them on properly, blah, blah, so we must ban evil civil defence and instead guarantee peace by appeasing the Nazis because of we don't, they will DEFINITELY gas us all with a massive gas bomb raid on day 1 of war. In fact, Philip Noel-Baker did this first in a BBC radio speech in 1927, 6 years before Hitler was elected. Family members who knew the truth from gas attacks in WWII - largely negated by simple gas masks and going into shelters for droplets of persistent liquids like mustard agent - had to put up with this lying BBC and other media propaganda for disarmament throughout the 1930s, to the joy of the Nazis who were secretly rearming and preparing for invasions (not necessarily war, since Hitler would have been quite happy to "peacefully" invade the world and then use efficient gas chambers to dispose of those whose race or views he found to be "offensive", like modern snowflakes today). What really irritated dad, however, was that Philip Noel-Baker, having lied about gas effects in his February 1927 BBC radio broadcast and throughout the 1930s to great applause from pacifists who effectively did Hitler's bidding, was made a Lord and a Nobel Peace prize winner for appeasement propaganda lies that led to world war, and then did the same thing all over again during the cold war, issuing nuclear weapons lies. In a 1980 House of Lords debate on Civil Defence, he lied that the air burst in Hiroshima produced lethal fallout: "It covers everything in Hiroshima not already rendered lethal, and so those who have escaped the flash, the blast, the fire, will die within a short time. The first atomic bomb weighed two kilograms. It was little larger than a cricket ball. ... In 1978, more than 2,000 died in Hiroshima from its long-term effects."

Assumption Variables Versus U.S.S.R. Civil Defense Effectiveness

Distance Evacuated

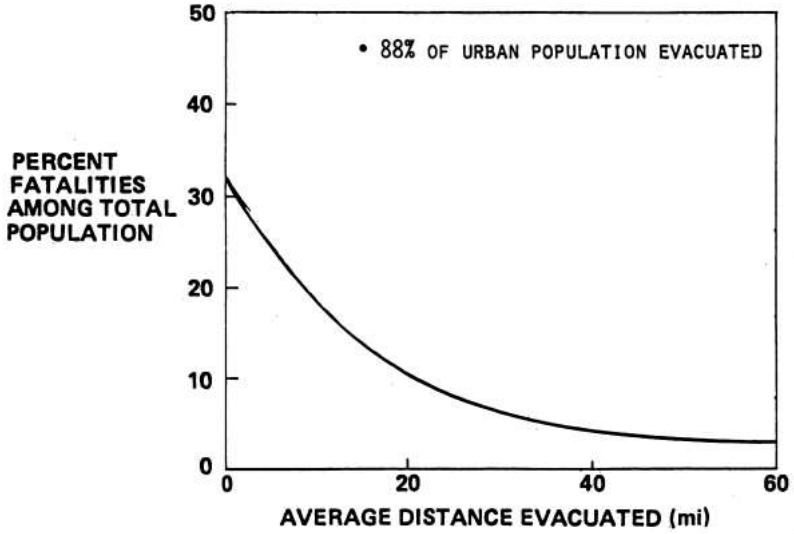


FIGURE 2

Assumption Variables Versus U.S.S.R. Civil Defense Effectiveness

Blast Protection Provided Evacuees and Rural Population

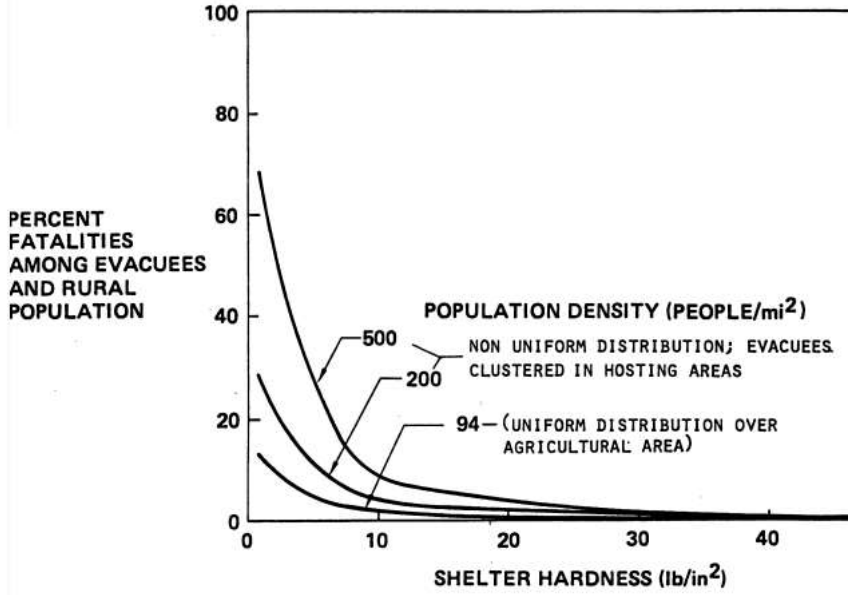


FIGURE 3

As to the reasons why our results differ from those produced by ACDA: ACDA assumed that 30 percent of the Soviet urban population would not be evacuated but that the good quality shelters would accommodate only 10 percent. Thus, 20 percent of the Soviet urban population was assumed unevacuated and inadequately protected, which of course subjects them to massive losses. The Soviet plans, which we endeavored to represent in our analysis, indicates that urban residents not sheltered will be evacuated.

A second difference centers around the way in which the Soviets choose to distribute and provide blast protection for their evacuees. The ACDA analysis assumed that the Soviets would cluster their evacuees in hosting areas, which we estimate could result in some concentrations as high as 500 persons per square mile. The evacuees were assumed to have no blast protection, so fatalities would occur at 3 to 7 psi according to the source used by ACDA. Figure 3 shows that a distribution of 500 persons per square mile and 3 psi fatal blast level results in a fatality level almost 100 times greater than a uniform distribution and blast protection to 15 psi (the minimum provided by Soviet expedient shelters). It is important to remember that it is the Soviet Union and not the United States that controls such factors as evacuation, distribution, and sheltering of the Soviet citizens.

The ACDA study of industrial protection, which I have reviewed, is not a competent work. The hardness levels known to be achievable on industrial components are seriously under-

stated while the difficulty of achieving these levels is overstated. The resiliency of industry in recovering from damage is disregarded. The report's fixation on the capability of one-megaton weapons to damage industry is misleading since the U.S. would be able to deliver few of these weapons against Soviet targets. Moreover, the ACDA study fails to assess the impact of protection on the survival and recovery of the Soviet industrial base as a whole.

T. K. Jones

Every word here is totally untrue, and easily disproved, but nobody in the House of Lords explained the facts to him, so this he quotes on page 5 of his 1980 Ecology Party book "How to Survive the Nuclear Age", and on page 6 he adds an attack on civil defence: "I feel the same outrage in 1980 [when the Home Office UK government civil defence propaganda booklet titled *Protect and Survive* to every citizen ... to strengthen the walls and ceilings as the pamphlet suggests, he needed a garden, a spade, sandbags, and the strength to dig and transport a ton of earth." However, the infirm or elderly don't need to hire an army of helpers to make a fallout shelter, because - contrary to Philip Noel-Baker - you can simply use water from a hose to fill up water filled bags inside boxes which do the shielding, as explained in the Home Office scientific advisory branch *Fission Fragments* magazine article (reprinted in the *Royal Observer Corps Journal,* vol. 27, issue 2, February 1985, page 26, below). In any case, in actual implementation, you would have some organization for civil defence in time of crisis, with people in nighbourhoods helping one another tending hose pipes, helping to assemble emergency shelters around tables in homes, etc). Noel-Baker ends his case by absurdly calling for disarmament as a "sure way to avoid the war", by again ignoring the lessons of his own 1930s disarmament war effects propaganda which led to appeasement and thus the encouragement of enemy aggression, triggering the Second World War: "This is not a utopian dream. It is the system by which David Lloyd George disarmed Germany in 1919 ..." ***This claim typifies Noel-Baker's absurd, self-contradictory nonsense, since DLG's 1919 "system" led to another, far worse, world war, not to peace***.

BOEING

In that 1980 Ecology Party book "How to Survive the nuclear age", there is after the deceptions from Labour Party Lord Noel-Baker, a summary of civil defence shelter advice, but then the book ends with the transcript of the final big speech from Lord Mountbatten to the arms control anti-nuclear propaganda institute SIPRI at Strasbourg on 11 May 1979 (the IRA tragically ended his appeasement campaign with a bomb on his boat off the coast of Sligo, Ireland, on 27 August 1979): "A military confrontation between the nuclear powers could entail the horrifying risk of nuclear warfare [*hardly likely if we have overwhelming superiority for credible deterrence, as we should have had - but did not have - in the 1930s to deter Hitler*]. ... A new world war can hardly fail to involve the all-out use of nuclear weapons [*this is debunked by former NATO General Sir John Hackett's book "The Third World War" which shows how escalation risks will be controlled even in the event of a Russian first-strike on Britain, provided that we are prepared for nuclear war - this book will be discussed in detail later in this blog post, below*]. ... Let us all resolve to take all possible practical steps to ensure that we do not, through our own folly, go over the edge."

FROM: "Royal Observer Corps Journal",
Feb. 1985, page 26

FRAGMENTS

Feb. '85

UK Home Off
FRAGMENTS" and
ROC

PROTECTION AGAINST RADIATION

A. L. Mather ex-SA, Northumberland

In 'Protect and Survive' a recommendation is made on page 11 para. 2 'Use tables if they are large enough to provide you all with shelter. Surround them and cover them with heavy furniture filled with sand, earth, books or clothing'. Similar shelters are proposed in paras 1 and 3.

Apart from the fact that under certain circumstances of location and weather sufficient soil may not be available, none of the materials suggested for radiation protection is of use to the shelter-bound occupants. The use of survival supplies as a radiation barrier is to be recommended, if not, indeed considered essential. As previously suggested fuel supplies, which have a half value thickness approaching that of soil, could be used in this way. Food supplies should be stacked in boxes as the inner protective barrier together with immediate water supplies. Water has a half value thickness of 200mm compared with 140mm for earth. One therefore has only to create a water barrier 50% greater in width to equate with a soil barrier. The water barrier can be erected in a very short time merely by filling suitable containers by means of a hosepipe. In this way an adequate shelter can be made in a fraction of the time needed for the filling and transportation of sandbags. Further this would provide a strategic supply of water for fire fighting, drinking, washing and for the later survival period during which water supplies may be limited.

Cheap containers would be needed for such a barrier and dustbins, plastic bottles etc would be expensive and inconvenient to store when not required. There is, however, a suitable container

their side) without bursting or collapsing
and access may be made to them by cu
which is attached to the screw top. Add
prevent the growth of algae or bacteria.

Not only can one stack these water br
shelter but these could also be put or
improve radiation protection in the fal
improve fire protection in the upper floor
these bags is low (£592 per 1000 includin
the thickness of the box to improve
increase the cost of the box by 50%. N
improved by simplification of design and

One weakness of such a system is the
bags to rupture by blast damage. Those b
openings should be protected by a suit
carpets, heavy timber and/or doors.

There would be load limitations on sc
aspect would need to be discussed with
However as the half thickness for water
then the equivalent weight of water wou
area of the floor.

The progressive reduction of radiati
shelter will allow the progressive use o
barrier. The empty water bags may be u

This system would perhaps find its pl

made by Bowater Scott Ltd (and possibly by other companies) which is used for the conveyance of milk. These are double walled plastic bags of five gallon capacity with screw caps. The bags are supplied flat together with fold flat heavy duty cardboard boxes. When the box is erected and the plastic bag within is filled, it takes the shape of the box and forms a fairly rigid 'brick' of water of dimensions 25 cm × 24 cm × 42 cm. These bricks may be stacked to a height of 4 units (on

shelters but there is no reason why v
supplement barriers in other types of
collapsed form are compact and may be
an emergency the barrier may be erecte
a very short period of time without any g
considerable help to elderly or infirm p
people with only a short time to constru

EXTRACTS

Table B–1. Severe/Moderate Blast Damage Radii for Surface Bursts (metesr)

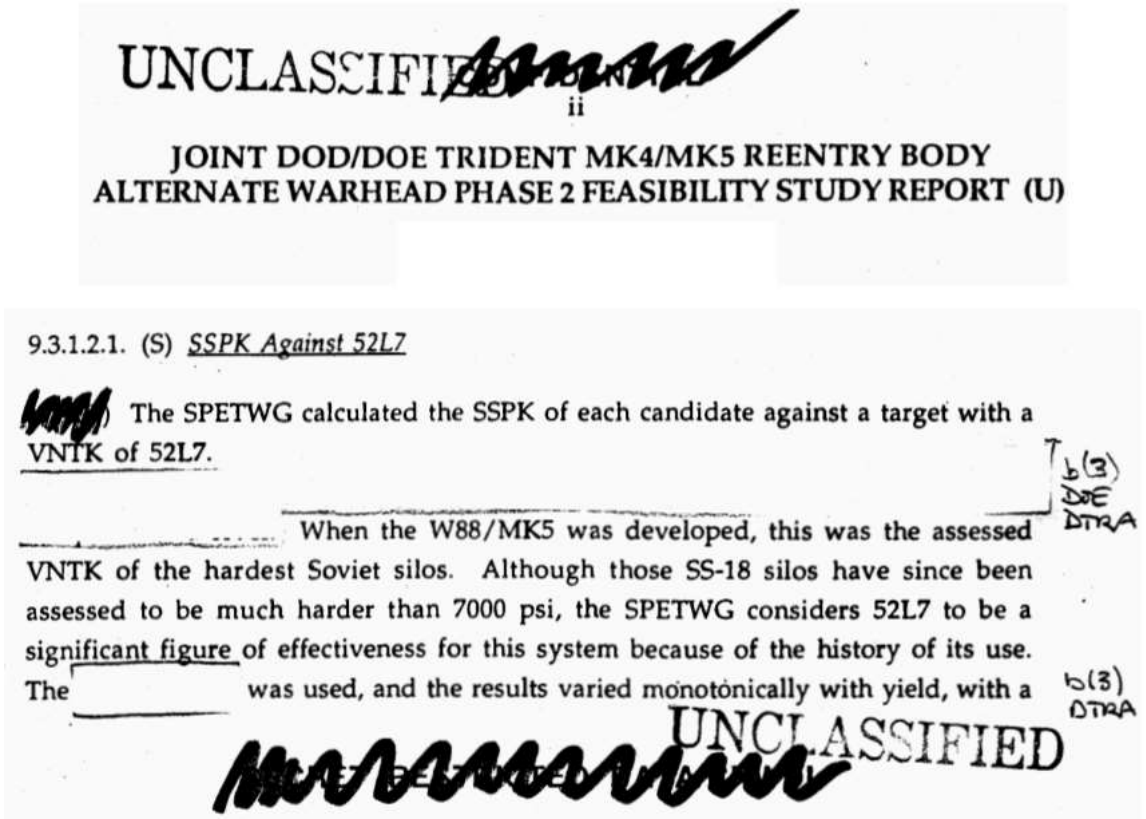
Material classification		ALPHA 0.01	BRAVO 0.05	CHARLIE 0.10	DELTA 0.50	ECHO 1 KT
Field fortifications	Mod	35	55	70	85	125
Earth covered surface shelters	Sev	35	60	65	80	100
Monumental-type multistory wall-bearing bldgs.	Mod	150	210	250	350	575
Multistory, wall-bearing bldgs (apt house type)	Sev	100	165	200	275	400
Multistory, reinforced bldgs (small windown area) Multistory, steel frame office bldgs.	Mod	65	100	130	200	350
Wood frame bldgs.	Sev	140	195	250	350	690

SOURCE: U.S. ARMY FIELD MANUAL "FM 5-26, EMPLOYMENT OF ATOMIC DEMOLITION MUNITIONS (ADM), AUGUST 1971".

$$\text{PROTECTION (CASUALTY REDUCTION FACTOR)} = \frac{\text{AREA OF SEVERE DAMAGE FOR HIROSHIMA'S WOOD FRAME BUILDINGS}}{\text{AREA OF SEVERE DAMAGE FOR EARTH COVERED SURFACE SHELTERS}}$$

$$= 690^2 / 100^2 = 6.9^2 \sim 50 \text{ FOR A 1 KILOTON SURFACE BURST.}$$

SO MOVING TO EARTH COVERED SHELTERS REDUCES CASUALTIES TO 2%, AND THEY ALSO PROVIDE RADIATION SHIELDING. IN ADDITION, THE "FIRESTORM" AND ITS "SOOT NUCLEAR WINTER" FANTASY, WERE DEBUNKED BY GEORGE R. STANBURY, WHO PLANNED THE GERMAN FIRESTORMS; YOU NEEDED 50% IGNITION OF MEDIEVAL WOODEN HOUSES IN HAMBURG TO START A FIRESTORM, WHEREAS THE SIMPLE FIREBALL SHADOWING OF HIGH-RISE MODERN CITY SKYLINES REDUCES THIS TO 5% OR LESS, PREVENTING FIRESTORMS AND CLIMATIC EFFECTS. THIS IS SUPPRESSED BY THE NUCLEAR EXAGGERATIONS BIAS OF JOURNALISTS.



UNCLASSIFIED

ii

JOINT DOD/DOE TRIDENT MK4/MK5 REENTRY BODY
ALTERNATE WARHEAD PHASE 2 FEASIBILITY STUDY REPORT (U)

9.3.1.2.1. (S) *SSPK Against 52L7*

The SPETWG calculated the SSPK of each candidate against a target with a VNTK of 52L7.

b(3) DOE DTRA

When the W88/MK5 was developed, this was the assessed VNTK of the hardest Soviet silos. Although those SS-18 silos have since been assessed to be much harder than 7000 psi, the SPETWG considers 52L7 to be a significant figure of effectiveness for this system because of the history of its use. The was used, and the results varied monotonically with yield, with a

b(3) DTRA

UNCLASSIFIED

ABOVE: the most advanced and latest American "counterforce" nuclear weapons, the oralloy (Oak Ridge Alloy, aka U235 loaded secondary stage) W88 nuclear warheads were designed to knock out the huge well shock-insulated Russian SS-18 missile silos when they had a physical vulnerability number of 52L7, corresponding to a peak overpressure of 7000 psi, which is well within the crater radius. This is highly relevant today, since ehe SS-18 (in Russian nomenclature: R-36M2) is still in service (like the American W88), and the Russians have 46 of them, each with 10 warheads of 800 kilotons each, i.e. a total of 10x46 = 460 nuclear warheads and 3680 megatons. These 211 ton SS-18s are due to be replaced with the latest 208 ton **Sarmat** (RS-28) missiles (which made its first test flight on 20 April 2022, during the Ukraine war), extending the range from 11,000 km for the SS-18 to 18,000 km for the Sarmat. Unfortunately, as this declassified report shows, as with the Russian civil defense shelters, the silo hardness was underrated and the physical vulnerability is not 52L7 as originally supposed. The SS-18 silos could take much higher peak overpressures than 7000 psi and related ground shock, cratering throwout, etc. (The current "best guess" - and this is not proof tested due to the ban on atmospheric nuclear testing - is that it takes a peak overpressure of 10,000 psi to blow the silo door off the SS-18 silo and wreck the missile, which occurs at a distance from the warhead similar to its inertial gyroscopic CEP targetting error if the accurate GPS satellite navigation system is taken out by high altitude bursts, so to get a high kill probability you need to target many warheads per silo, a hugely inefficient strategy when all the enemy has to do is launch the SS-18 out of the silo before your warheads arrive!) In addition to this underestimate of the hardness of vital military "counterforce" targets in Russia, **the Americans also massively over-estimated the cratering and ground shock effects for high yields in ordinary soils (not easily broken coral reefs!).** (For references, please see the earlier blog posts about cratering exaggerations linked **here** and **here**.) The points we want people to take away, or at least openly investigate and question are:

(1) countervalue (anti-city) effects of nuclear weapons are bunk because, aside from the mistakes and deliberate omissions Glasstone and Dolan made for propaganda purposes in their 1977 edition, if the chips really do go down, you *or your opponent* can simply evacuate cities - most of which self-evacuate at 5pm every weekday, anyhow - evacuation is not a miracle, despite what *Scientific American* or *Bulletin of Atomic Scientists* says - before issuing an ultimatum, *just as the UK did with evacuating kids from London in Operation Pied Piper on 1 September 1939 before issuing an ultimatum and then declaring war 48 hours later*,

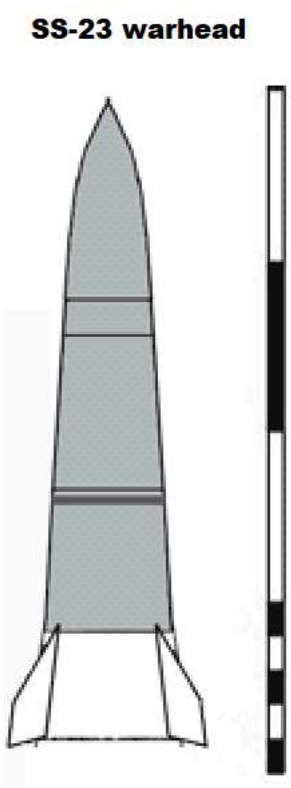
(2) you or your opponent can not only safeguard the civilians in cities by evacuating them (or putting the people into shelters/basements etc if you have them, as the Russians do, and as thankfully the Ukrainians do which is a key reason they have been able to fight the Russian invasion, as a result of having previously been part of the civil defense obsessed USSR), but *100% of missiles in silos can also be safeguarded from destruction by simply firing them out of their silos, if seriously threatened by a counterforce (anti-silo) enemy attack*. In other words, if you decide to credibly target enemy *nuclear weapons* (a very costly strategy in terms of the number of W88 warheads per silo for any significant chance of damaging a >7000psi peak overpressure-requiring SS-18 missile silo, which are about as well protected as the concrete and steel around most nuclear power reactor cores), your targetting policy will encourage the enemy to *launch first, to save their missiles from being taken out!* So using nuclear weapons to target other nuclear weapons in hardened silos (or hidden in the sea in submarines!), apart from being extremely inefficient and costly in terms of your stockpile, is also a policy that *provokes the risk of enemy "launch on warning" crisis instability* because you are, if "successful", *removing the enemy's protected second strike retaliation capability, and once the second strike option is gone, they are pushed back into the old first-strike aka launch-on-warning policy,* which is extremely dangerous if their radar operators mistake some third party's missile testing for a launch against them, etc., etc. So the obsessive "disarmament fantasy" of *only using nuclear weapons to try to deter other nuclear weapons in silos by targeting them,* is a dangerous illusion that provokes crisis instability and risks an accidental nuclear war, in addition to being an exceptionally ineffective deterrent! All you do with that delusion is to deter the enemy from a second-strike policy, and force the enemy into a dangerous first-strike/launch on warning policy! If you can knock out the enemy warheads in their silos, the enemy will *simply ensure that there is a very high probability that their missiles have been launched out of their silos before your warheads arrive, so you will be uselessly destroying EMPTY missiles silos!* (your warheads take 25 minutes to arrive for an ICBM between continents, and 10 minutes for a back door attack of an SLBM launched from a submarine; less time is required for a Russian sub to hit NY or LA because they are beside oceans, unlike Moscow and most Russian targets that are well inland!).

(3) In any case, how do you target enemy SLBMs in submarines hidden at sea? Similarly, the most numerous Russian ICBM in their stockpile is the mobile SS-27 Mod 2/RS-24, of which they have 135 missiles on 16-wheeled mobile launch vehicles which can move around, with 4 separate MIRV nuclear megaton warheads per missile and a range of 11,000 km. How do you target them as they move around during a crisis situation? They can easily move position enough to survive an nuclear warhead in the US stockpile during the 25 minutes while your missiles are on the way to hit them in a crisis situation, so you are literally trying to hit a moving target - do you really believe America will be able to reprogram the target locations for ICBM warheads in flight as they are moving? The whole idea would be amusing if it wasn't so tragic (there was an effort to create a warhead which could track its moving target and adjust its trajectory accordingly, the MARV - Maneuverable Reentry Vehicle - **the only known Western MARV was the Pershing II warhead**, which disarmed as part of the INF treaty to appease Russia/pro-disarmament politicians in the West). *So the whole idea of using nuclear weapons to hit enemy nuclear weapons before they are launched is crazy and dangerous.* It's no joke that all the disarmament propaganda claims falsely that nuclear weapons have only the purpose of targetting other nuclear weapons in silos. That policy is dangerous, because it just

encourages the enemy to get the weapons out of their silos before your weapons can arrive, so you are not deterring the enemy to launch their weapons, but forcing them to launch on warning, a lunatic policy! Nuclear weapons are only effective in a counterforce operation against armies on the move, either as a deterrent or to physically stop invasions without collateral damage by air burst enhanced neutron weapons. The only real use of nuclear weapons should be, as Oppenheimer said, as a tactical threat to stop the military invasions and attacks that triggered two world wars.

Nuclear weapons *are* exceptionally good at deterring (or stopping) armies on the move! Not so if they are dispersed in defensive positions like hasty earth covered emergency civil defense shelters that resist 40 psi peak overpressure and give a protection factor of 200 or more against radiation; but the point is that they deter enemy military *offensives* and once the enemy has crossed your border you are within your rights to stop them; the credible threat will *prevent* invasions this way, ending world war. (Nuclear weapons are also effective at destroying enemy nuclear weapons in flight, e.g. the 2 kt W66 neutron warhead in the American Sprint ABM missile could melt down the fissile material in Russian nuclear warheads in flight in the atmosphere, and the 5 Mt W71 x-ray warhead of the Spartan ABM missile would ablate, deflect and destroy Russian warheads in space; they also knock down trees to create demilitarised zones in jungle warfare which enable easy identification of insurgents entering those zones for attacks.)











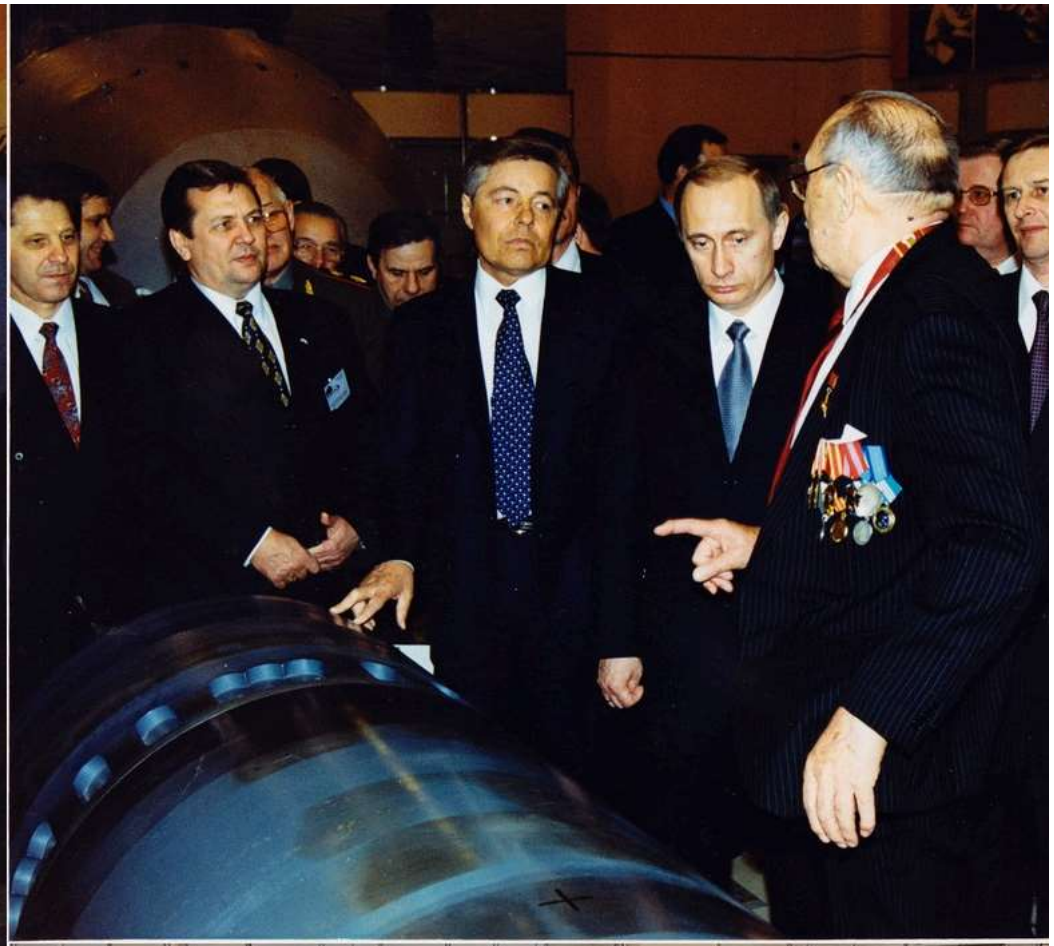


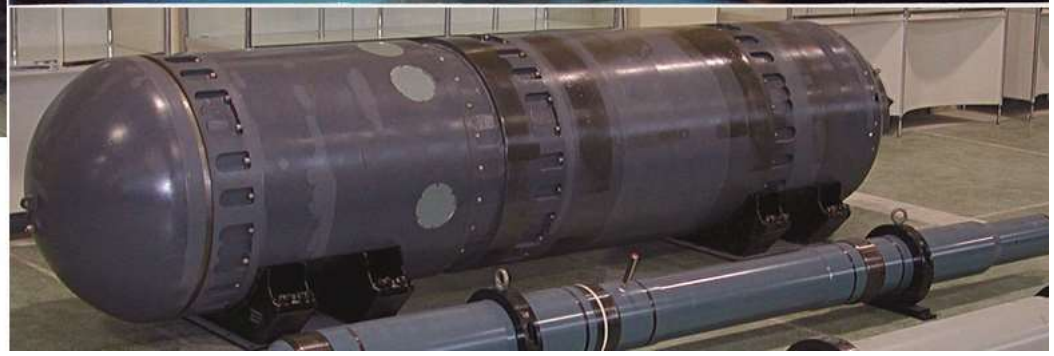
President Puti
double-primar
warhead desig
November 17,

Yuri Trutnev, *TH*
weapons is a spe
Novosti, 11/22/20
https://ria.ru/2017

"But in the mean
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Boris V. Litvinov showing Putin the world's smallest diameter (152.4mm) 2.5 kt artillery shell (above), and a 99.85% clean thermonuclear bomb (above right and right), 30 March 2000.



B.V. Litvinov, President Putin, P.I. Sumin at RFNC-VNIITF, 30 March 2000





PRESIDENT PUTIN AWARDS NUCLEAR MERIT TO THE FATHERLAND IN 2000.

Испытания ядерных зарядов

TEST DATE PLACE KILOTONS

RUSSIAN DEVELOPMENT (
YIELD TACTICAL NUCLEA

№ по каталогу	Число, месяц, год	Место проведения испытаний	Энерговыделение, кт ТЭ	Примечание
245	13.02.1966	СИП шт.Е-1	125	Испытание заряда с термоядерным блоком, содержащим дейтерий под большим давлением
280	07.01.1968	СИП шт.810	7.5	Физический опыт для определения минимального количества дейтерия, которое может устойчиво взрываться.
294	09.11.1968	СИП шт.606	4	С 1967 по 1970 гг. испытывался заряд с термоядерным блоком, дающим минимум наведенной активности. Всего проведено 8 таких опытов.
296	18.12.1968	СИП шт.508	8.9	
299	13.04.1969	СИП шт.24П	0,001-20	
302	04.07.1969	СИП шт.710	15	
333	22.03.1971	СИП шт.510П	67	
357	28.03.1972	СИП шт.191	6	
377	10.12.1972	СИП скв.1204	140	Испытание особо “чистого” заряда с высоким коэффициентом термоядерности (около 1%)
382	23.07.1973	СИП скв.1066	212	
400	31.05.1974	СИП скв.1207	71	
422	08.06.1975	СИП шт.165	32	

PURE D
UNDER

TEST C
FOR PU
FUSIO

EXAMP
TESTS
DEVEL
YIELD

140 KI
YIELD
~1% FI

422	08.06.1979	СИП шт.165	32	
616	18.08.1983	СИПНЗ шт.А-40	0,001-20	
658	28.12.1984	СИП скв.1353	0,001-20	

Специалисты другого ядерного центра - ВНИИТФ - сначала тоже предполагали при создания "чистых" ЯВУ для взрывов наружного действия использовать твердые дейтериды лития с небольшой добавкой трития (для затравки). Однако в 1963 г. возникли новые идеи. Так, физики-теоретики ВНИИТФ Е.Н. Аврорин, Е.И. Забабахин, Л.П. Феоктистов, А.К. Хлебников, А.А. Бунатян и другие. предложили провести физический опыт, в котором осуществить "зажигание"* большого количества трития и дейте-

** Дейтоны, дейтроны - разные названия ядер дейтерия.*

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TRANSLATION OF EXTRACT FROM PAGE 138:

Specialists of the Other Nuclear Center - VNIITF - initially suggested using solid lithium deuterides with a small addition of tritium (for seed) when creating "clean" JAVA for external explosions However, in 1963, new ideas emerged. So, theoretical physicists of VNIITFE.N. Avrorin, E.I. Zababakhin, L.P. Feoktistov, A.K. Khlebnikov, A.A. Bunatyan and others. they offered to conduct a physical experiment in which to "ignite"* a large amount of tritium and data-

* Deutons, deuterons are different names of deuterium nuclei.

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рия. Для этого на заводе Института была создана специальная физическая установка ФО-24, сконструированная группой специалистов первого конструкторского бюро ВНИИТФ под руководством Б. В. Литвинова и П.А. Есина. Физический опыт с использованием этой установки был проведен 04.02.1965 г. на Семипалатинском полигоне. В этом эксперименте, возможно, впервые в мире было осуществлено зажигание большой массы газообразного дейтерия [17].

Развивая идеи, реализованные при проведении этого опыта, Е.Н. Аврорин предложил в новой физической схеме заряда использовать газообразный дейтерий под большим давлением (повышенной плотности). Проверка этого конструкторского предложения, прове-

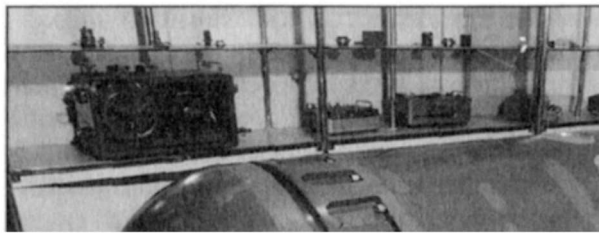
ria. For this purpose, a special physical installa at the Institute's plant, designed by a group of design bureau of VNIITF under the leadersh P.A. Esin. The physical experiment with the us conducted on 02/04/1965 at the Semipalatins perhaps for the first time in the world, ignition of deuterium was carried out [17]. **(NOTE: Russ**

Developing the ideas realized during E.N. Avrorin proposed using deuterium gas under high pressure (h physical charge scheme . The verification carried out on 13.02.1966 at the Semipalati and fully confirmed the results of physical ca was carried out from the primary node, the fr of which did not exceed 6% of the total ener , the fact of obtaining energy release from deuterium was proved. This important sci result opened the way to the use of the ch in the energy sector. What could not be ob and complex installations for thermonuclear f disproportionately large scale in an undergro

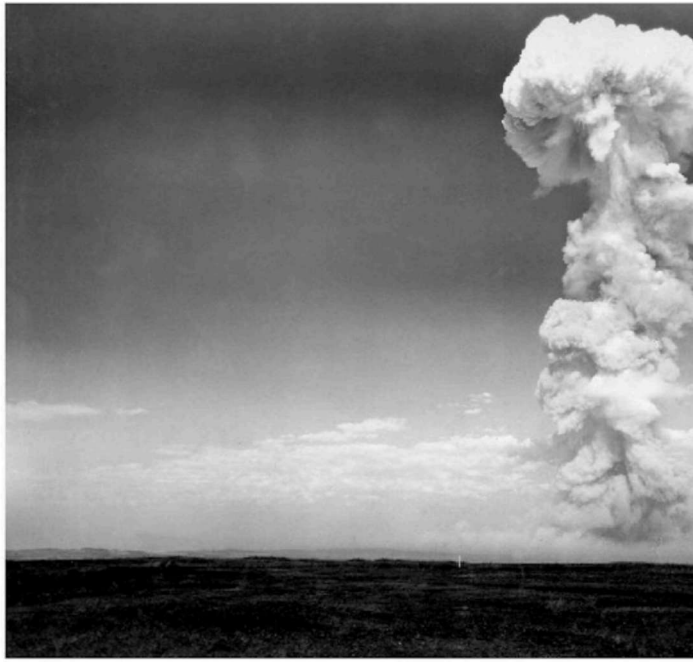
* Physicists call "ignition" the implementation of with a noticeable energy release, which can l flow of thermonuclear reactions.

ABOVE: TRANSLATION FROM PAGE 1

AS PROVED IN A 6% FISSION (94% CLEAN)







40 KT at 350 m burst altitude

Общий вид облака воздушного ядерного взрыва, произведенного 14.09.1954 г. на Тоцком учении: а) – через несколько секунд после взрыва; б) – через несколько минут после взрыва

Мощности доз гамма-излучения на местности в районе эпицентра воздушного ядерного взрыва, произведенного на Тоцком учении

Расстояние от эпицентра взрыва, м	Мощность дозы гамма-излучения на различное время после взрыва, Р/ч				
	30 мин	1 час	5 часов	1 сутки	3 суток
100	-	-	12	1	0,3
200	140	85	9	0,8	0,1
400	19	12	1,2	0,1	-
700	2,0	1,2	0,1	0,001	-
1000	0,3	0,2	0,02	0,002	-

Необходимо отметить, что причиной радиоактивного загрязне-

14 September 1954

The power of gamma radiation doses on th
epicenter of an aerial nuclear explosion produ

Distance from the epicenter of the explosion, m	Gamma radiation dose rate f explosion		
	30 min	1 hour	5 h
100	-	-	1
200	140	85	
400	19	12	
700	2,0	1,2	
1000	0,3	0,2	



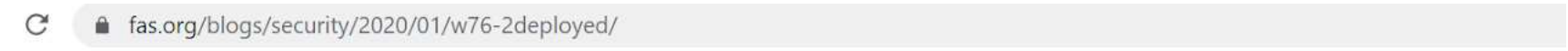
ABOVE: Russian nuclear weaponeer **Boris Vasilyevich Litvinov** explaining how the world's smallest diameter nuclear artillery shell and allegedly cleanest thermonuclear weapon work to President Putin on 30 March 2000, during his visit to VNIITF at Snezhinsk, Russia. (**President Putin wrote on his filmed entry on the Visitor's Book at VNIITF Snezhinsk - screen print of the entry is included later below in Russian - *"The biggest danger facing Russia and the whole world is the violation of the balance of power at the cost of huge efforts and sacrifices to the Soviet. The Union managed to achieve a balance of great merit in this, due to your team together. We are obliged not only to maintain the existing achievements but also to achieve new frontiers relying on the talent and courage of our scientists. With hope and love, Vladimir Vladimirovich, March 31, 2000".*** This is from the film the lab put out in 2005, and we include a selection of stills from it. We're not as yet entirely sure of the reason for the possible discrepancy in dates of Putin's visit, 30 and 31 March 2000, from different sources. It is obviously possible Putin stayed overnight, arriving on 30 March 2000, and signed the visitor's book when leaving the next day.

Peace through credible war deterrence:

The worthless Budapest Memorandum on Security Assurances signed by Russia, UK and Ukraine on 5 December 1994 led the way to the removal of the war-preventing nuclear deterrent from Ukraine: the liars claimed like the 1930s Nazis that signatures on paper would guarantee survival, not deterrence. OK, you edit a TV show or paper, and you think this is not relevant to today's problems faced by the person in the street unless Putin actually presses the button. You're a liar if you claim this. Paying higher energy prices? It's due to nuclear disarmament liars allowing Putin to start the war, cutting energy supplies to Europe, driving up prices. Like the disarmament of the UK up to 1935 (and slower rearmament thereafter, to avoid provoking a tantrum from Nazis, in the name of "peaceful coexistence" with state terrorism and racism), Ukraine's nuclear disarmament from 1994-8 guaranteed war, not peace; it gave the green card to the supporter of enemy disarmament, Russia. *Nazis in the 1930s pushed for Western disarmament in the name of "peaceful" gas chamber genocide and*

"peaceful" invasions without opposition (because their enemies had disarmed), just as the thugs do today. As you'll see below in this post, this is not "news". It's the regular, repeating, trick used by bankrupt dictatorships to start world wars: get your enemies to disarm then invade neighbours with impunity! They don't think they can be ever "proved lying evil warmongers by humble yours truly" because they will just keep parroting the lie that if Ukraine had nuclear weapons, there would have been a nuclear war between Ukraine-Russia, not peace: HEY GUYS COUNTRIES WITH NUCLEAR WEAPONS HAVEN'T HAD NUCLEAR WARS YET! HISTORY SHOWS THE ONLY COUNTRY TO HAVE BEEN ATTACKED WITH NUCLEAR WEAPONS (AUGUST 1945) DID N-O-T HAVE ANY NUCLEAR WEAPONS. BEING NUCLEAR UNARMED DIDN'T SAVE IT FROM BEING NUKED. OK NOW? NO?????????! LET'S SEE ALL THE SECRET FACTS THAT THE "SECRECY-OPPOSED" BLOGGERS REFUSE TO TELL YOU IN THE NAME OF THEIR EFFORTS TO START A NUCLEAR WAR:

(It should be noted that we're not "trying to be controversial" but just trying to revert politicians to the saner nuclear situation that existed during the Cuban missiles crisis when OVERWHELMING SUPERIORITY enabled a safer resolution than the American FASists William M. Arkin and Hans M. Kristensen in their 2020 paper "US Deploys New Low-Yield Nuclear Submarine Warhead" which sneered ignorantly and with evil warmongering maliciousness to encourage Putin to murder kids in Ukraine (they should be kicked out of the status of "experts" since they are provably malign charlatans like the "Glasstone/Nukemap" liar in the populist Marx-media), at the East-West moral asymmetry of Putin-Trump (like the disproved liar Hans Bethe who quoted Brezhnev to disprove Reagan's evil empire speech etc): "... while Russian low-yield nuclear weapons lower the threshold making nuclear use more likely, U.S. low-yield weapons instead “raise the nuclear threshold” and make nuclear use less likely." - nuclear war FAS-ist fans sneering at the West-East moral asymmetry in 2020, https://fas.org/blogs/security/2020/01/w76-2deployed/ We'll go into the details later on, below. But if we were trying to be "controversial" we'd recommend implementing ABM in Western cities to enhance credible deterrence, or even a first strike to disarm the aggressor and end the war - whoops - should have typed what FAS-ists call "special military ops"!)



FAS Federation of American Scientists

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US Deploys New Low-Yield Nuclear Submarine Warhead

By Hans Kristensen · January 29, 2020

By William M. Arkin* and Hans M. Kristensen

> The authors of the NPR also saw the dilemma of suggesting a more usable weapon. They thus explained that the W intended to enable, nor does it enable, 'nuclear war-fighting.' Nor will it lower the nuclear threshold." In other words yield nuclear weapons lower the threshold making nuclear use more likely, U.S. low-yield weapons instead "raise the and make nuclear use less likely. Undersecretary of Defense for Policy John Rood even told reporters that the W76-2 stabilizing" and in no way supports U.S. early use of nuclear weapons, even though the Nuclear Posture Review expl warhead was needed for "prompt response" strike options against Russian early use of nuclear weapons.

How FAS-ism in America supports fucking shit nuclear dictators ("morally equivalent to Trump"!!

ABOVE: from 1992-8, Russia pushed for Ukraine (which has excellent nuclear competence, having Europe's largest nuclear power station, which could have been used to irradiate lithium to produce tritium for independent maintenance of nuclear warheads), to disarm its extensive nuclear warheads using its **Cold War traditional Russian supported hypocritical "peace through nuclear disarmament" propaganda movements in the Western media and Western politics (including the current US president)** and **in 1994 signed a peace guarantee to protect Ukraine's borders, with the UK and USA**. Many of us were worried that this was a recipe for a future


Novosti news:
January 1992
Ukrainian nuclear
warhead
disarmament
begins to ensure
the peace of Ukraine

world war should Russia's attempt at reform fail, leading to a decision to rebuild the USSR starting with the biggest component outside Russia, i.e. Ukraine. **At the same time, Boris Yeltsin and the Russian nuclear labs were producing a new generation of tactical nuclear weapons to counter and cancel US conventional weapons, according to a secret-classified 2000 CIA report** (linked **here**). "During Putin's mobilization announcement, he[Putin] also threatened to use nuclear weapons in Ukraine, baselessly accused Western countries of provoking him with "nuclear blackmail," and said his remarks weren't a bluff. Russia has the world's largest nuclear arsenal, equipped with both tactical nuclear weapons as well as strategic nuclear weapons, which would be used against cities. "Russians that I keep in touch within Russia are convinced he's going to go nuclear," [ex-CIA agent] Baer told CNN. "I don't know how well-connected they are, but this threat — it was a threat initially — but the more trouble he's in, the more likely he's going to use nuclear weapons"." - **Business Insider, 27 September 2022, *Ex-CIA officer says Putin is 'completely cornered' and the chances of his using tactical nuclear weapons in Ukraine are increasing 'by the day'.*** "The US and its allies would eradicate Russia's military troops in Ukraine and sink its Black Sea fleet if Vladimir Putin uses nuclear weapons, said former CIA director David Petraeus." - ***US would destroy Russia's entire army if Putin use nukes in Ukraine, says former CIA director,* The Independent, 3 October 2022.** Nobody believes Petraeus because Putin has already made clear he will start start off with a ***Fourth Protocol*** style false-flag (contrived) nuclear attack on a Russian supply dump or whatever in Ukraine, pretend that is an enemy attack, and use that as a basis to "retaliate" using nuclear weapons. **This is actually a very old diplomatic "fog of war" tactic, which President Kennedy's brother Robert referred to as "sinking the Maine again", in a taped discussion on 16 October 1962, when he considered it during the Cuban Missiles Crisis as a possible false-flag "justification" for invading Cuba to remove those Russian nuclear weapons.** (The USS Maine was sunk, supposedly by a Cuban mine, in Havana Harbor on February 15, 1898, and was used to "justify" the American war with Spain in April.) As a pretext for war, this doesn't matter a dime from the perspective of whether the West believes it. It's just about creating an iota of doubt to enable it to violate agreements. Similarly, Russia has never admitted the lethal attacks with Po-210 (UK, 2006) or Novichok (UK, 2018). It's not about whether the West believes any of it. It's purely about Russian bureaucracy. The more evil there is, the more fake justification. (The Nazis were also obsessed with generating fake justifications by diplomatic bureaucracy to excuse genocide and invasions; this always seems to be about trying to go down in history as holier-than-holy.)



"A boy from the Moscow outskirts, born on the social cataclysms of the year, Yevgeny Zababa quarter of a century - from 1960 to 1984, was t leader of the second (in time of creation) nucle center of our country. But the general public, t virtually unknown. ... such trains, camouflaged were a dozen, made up of three special divisio missile forces. One - in the Perm region, the ot Kostroma, the third - under the Krasnoyarsk. .. the "Scalpel" under the car roof is a separable ten warheads of individual guidance. The powe 550 kilotons in TNT equivalent. All together, st - 5.5 megatons. We are not going to specify wh missiles were aiming at and what they could e powder."

- https://en.topwar.ru/107278-tam-gde-zatochili skalpel.html



ГЕРОИ АТОМНОГО ПРОЕКТА

Герои атомного проекта. — 2005
Heroes of the atomic project. — 2005

Юрий Николаевич Бабаев =
Yury Nikolaevich Babaev

Социалистического Труда с вручением ордена Ленина и золотой медали "Серп и Молот". Он лауреат Сталинской (1954) и Ленинской (1958) премий, награжден орденами Ленина (1951, 1959, 1960), Трудового Красного Знамени (1954), Красной Звезды (1945) и орденом "Знак Почёта" (1944).

И. И. Африкантов принимал активное участие в общественной жизни города и области: с 1967 г. был депутатом Верховного Совета РСФСР, избирался делегатом 22-го съезда КПСС. В повседневной жизни Игорь Иванович был великолепным собеседником, его энциклопедические знания в различных областях делали его практически своим человеком в любом обществе. Колоссальные нагрузки физического и морального плана серьезно подорвали его здоровье, поэтому все свободное время он проводил на природе с семьей. Увлекался фотографией, и в этом увлечении добился профессионального мастерства.

В настоящее время ОКБ машиностроения носит имя Игоря Ивановича Африкантова.



Бабаев
Юрий Николаевич
(21 мая 1928 г.—6 октября 1986 г.)

Бабаев Ю. Н. родился в Москве. В годы войны семья Бабаевых была эвакуирована сначала в Челябинскую область, затем в Среднюю Азию, в г. Ленинабад (ныне г. Ходжент). Холодные и голодные годы Бабаев пережил школьником. И это не помешало ему отлично учиться, за один год освоить программу 8-го и 9-го классов. В 10-м классе он учился уже в Москве. Затем поступил на физический факультет МГУ, который окончил в 1950 г. с отличием.

В начале 1951 г. Юрий Николаевич как лучший студент был направлен в КБ-11 (ВНИИЭФ, г. Саров). Работать начал в лаборатории А. Д. Сахарова. Участвовал в разработке первой водородной бомбы, за что ему было присвоено звание лауреата Сталинской премии. Очень быстро прошел путь от старшего лаборанта до заместителя начальника отделения.

Ю. Н. Бабаев был крупнейшим специалистом в области создания атомных и термоядерных зарядов. В 1955 г. совместно с Ю. А. Трутневым он сформировал новое направление в создании термоядерных зарядов с кардинально улучшенными характеристиками. В 1958 г. была успешно завершена экспериментальная отработка первого заряда нового типа.

Этой работе предшествовали большие теоретические исследования по физическому обоснованию и математическому расчету различных процессов, которые были во многом еще неясными. Были сформулированы задачи на разработку новых программ для расчетов. За создание нового направления и разработку термоядерных зарядов в 1959 г. Ю. Н. Бабаев был удостоен звания лауреата Ленинской премии.

В 1961–1962 гг. Юрием Николаевичем и его коллегами были разработаны новые, более совершенные заряды. Большая часть этих зарядов до сих пор находится на вооружении Российской Армии. За участие в разработке ряда термоядерных зарядов с высокими удельными характеристиками Ю. Н. Бабаеву в 1962 г. было присвоено звание Героя Социалистического Труда с вручением ордена Ленина и золотой медали "Серп и Молот". В этом же году ему была присуждена ученая степень доктора технических наук, а 1968-м он становится членом-корреспондентом АН СССР.

Под руководством Ю. Н. Бабаева в последующие годы были разработаны новые ядерные и термоядерные заряды различного назначения для оснащения большинства родов войск Вооруженных Сил СССР. Он многократно участвовал в испытаниях термоядерных зарядов на полигонах МО как специалист и как руководитель. Его вклад в разработку зарядов неоценим.

По инициативе Ю. Н. Бабаева и Ю. А. Трутнева и под их руководством во ВНИИЭФ были разработаны термоядерные заряды для народнохозяйственных целей – заряды с минимальной оскопочной радиоактивностью. Некоторые из них были применены для создания водохранилищ, гашения газовых факелов, интенсификации газовых и нефтяных месторождений и т. д.

Большая теоретическая работа была проведена им по использованию ядерных взрывов для наработки делящихся материалов.

Дальнейшим направлением работ Ю. Н. Бабаева было коренное усовершенствование ядерных зарядов – двойной подход. Была разработана теория, усовершенствованы методы расчета и т. д. Такие термоядерные заряды были более просты по конструкции и технологии изготовления. Они были испытаны, но работали не всегда стабильно и требовали доводки, но Юрий Николаевич не успел этого сделать.

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Yu. N. Babayev was the largest specialist in the and thermonuclear charges. In 1955, together wi Trutnev, he formed a new direction in the creation c thermonuclear charges with radically improved c the experimental testing of the first row of a new t successfully completed.

This work was preceded by extensive theoreti the physical justification and mathematical calcul processes, which were still largely unclear. Task development of new programs for calculations creation of a new direction and the developmen charges in 1959, Yu. N. Babaev was awarded the Prize laureate.

В 1961-1962 Yuri Nikolaevich and his colle developed new, more advanced charges. Most of th are still in service with the Russian Army. For his development of a number of thermonuclear charge characteristics, Yu. N. Babayev was awarded th Socialist Labor in 1962 with the award of the Orde medal "Sickle and Mopot". In the same year he w of Doctor of Technical Sciences, and in 1968 he b member of the USSR Academy of Sciences.

Under the leadership of Yu. N. Babayev , r and thermonuclear charges of various values were subsequent years to equip most branches of the Ar of the USSR. He repeatedly participated in the tests of the landfills of the Ministry of Defense as a specialist and as a the development of charges is invaluable.

Translation from Russian to English

ABOVE: **useful entry about Babaev's design work on Russian thermonuclear weapons in the 2005 Russian book, Герои атомного проекта (Heroes of the atomic project), with side by side Russian and English text translation (since this is important to establish as hard fact beyond any doubt, for the record): "In 1961-1962, Yuri Nikolaevich (Babaev) and his colleagues developed new, more advanced charges.** ***Most of these charges are still in service with the Russian Army.*** **For his participation in the development of a number of thermonuclear charges with high specific characteristics, Yu. N. Babayev was awarded the title of Hero of Socialist Labor in 1962 with the award of the Order of Lenin...** ***Under the leadership of Yu. N. Babayev, new nuclear and thermonuclear charges of various values were developed in subsequent years to equip most branches of the Armed forces of the USSR. ... The further direction of Yu. N. Babayav's work was the radical improvement of nuclear charges - a dual approach. ... Such thermonuclear charges***

По инициативе Ю. Н. Бабаева и Ю. А. Трутнева и под их руководством во ВНИИЭФ были разработаны термоядерные заряды для народнохозяйственных целей – заряды с минимальной осколочной радиоактивностью. Некоторые из них были применены для создания водохранилищ, гашения газовых факелов, интенсификации газовых и нефтяных месторождений и т. д.

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Ю. Н. Бабаев внес колоссальный вклад в развитие теоретических двумерных программ, что способствовало созданию математического аппарата. Его деятельность была мощным стимулом для развития расчетов сложнейших математических задач и физических процессов. Он много работал в смежных областях. Занимался лазерной тематикой: накачкой лазеров от ядерного взрыва. Интересовался он и биологией, влиянием радиации на человека и окружающую среду. Были у него и предложения по выведению в космос аппаратов военного назначения.

Ю. Н. Бабаев вырастил большую плеяду молодых ученых, кандидатов и докторов наук, которые сегодня успешно продолжают его дело.

В 2000 г. по завершении одной из разработок, в которой Юрий Николаевич принимал непосредственное участие, ему была присуждена Государственная премия РФ (посмертно). Он награжден двумя орденами Ленина, орденом Трудового Красного Знамени, медалью "За трудовую доблесть".

At the initiative of Yu. N. Babaev and Yu. A.
their leadership , thermonuclear charges for n
economic chains were developed at VNIIEF -
with minimal scoping radioactivity. Some of them
used to create reservoirs, extinguish gas flares, i
gas and oil fields, etc.

A lot of theoretical work was carried out by
nuclear explosions for the development of fissile

The further direction of Yu. N. Babayev's wo
improvement of nuclear charges - a dual approac
was developed, calculation methods were impro
thermonuclear charges were simpler in design a
technology . They were tested, but they did not al
required fine-tuning, but Yuri Nikolaevich did not

Yu. N. Babaev made a copossal contribu
of theoretical deumeric programs, which contrib
of a mathematical apparatus. His activity was a
the development of calculations of the most
problems and physical processes. He worked
was engaged in laser subjects: pumping laser fr
He was also interested in biology, the effect
and the environment. He also had proposals for
vehicles into space.

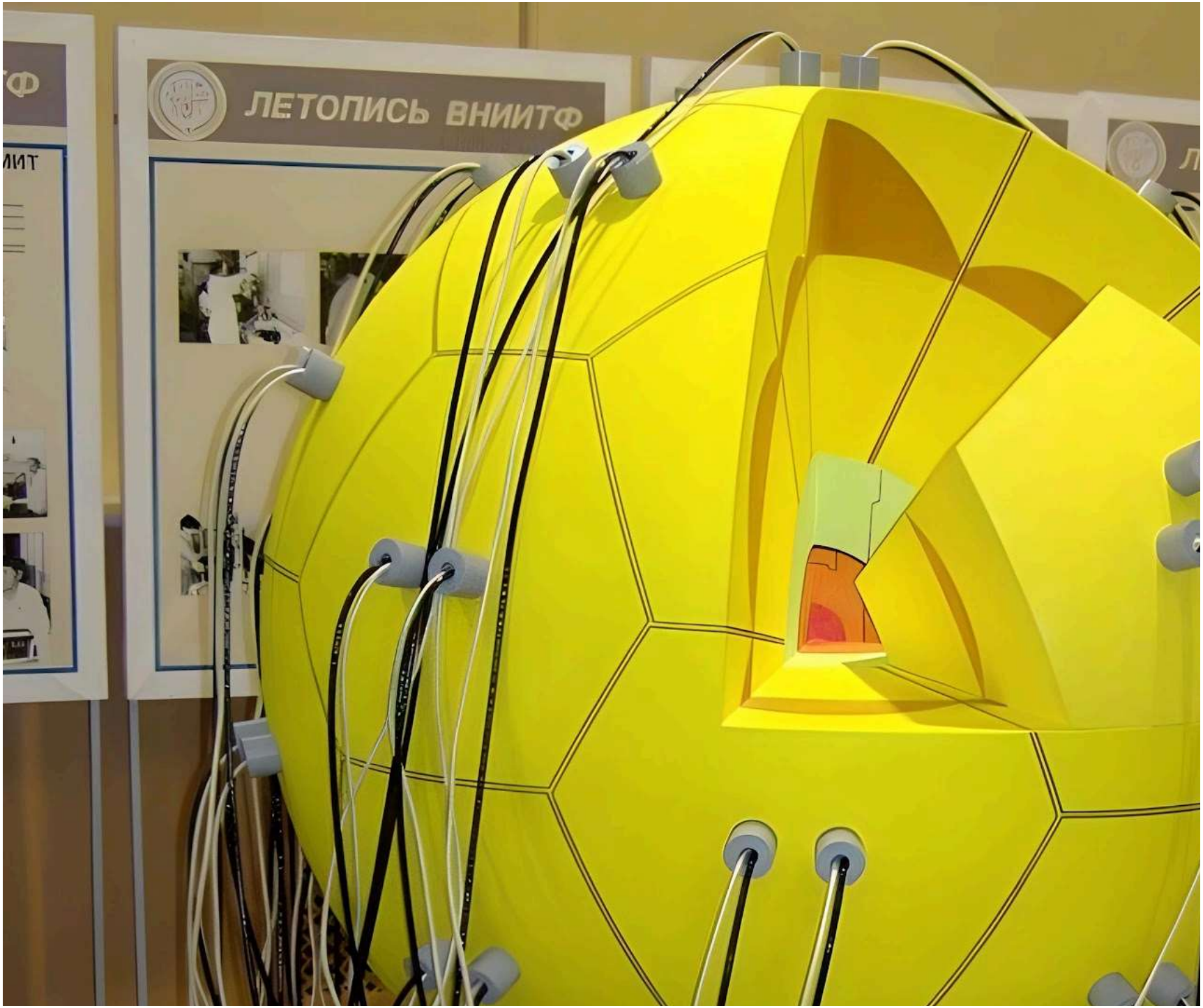
Yu. N. Babayev has raised a large galaxy of yo
and doctors of sciences, who today successfully

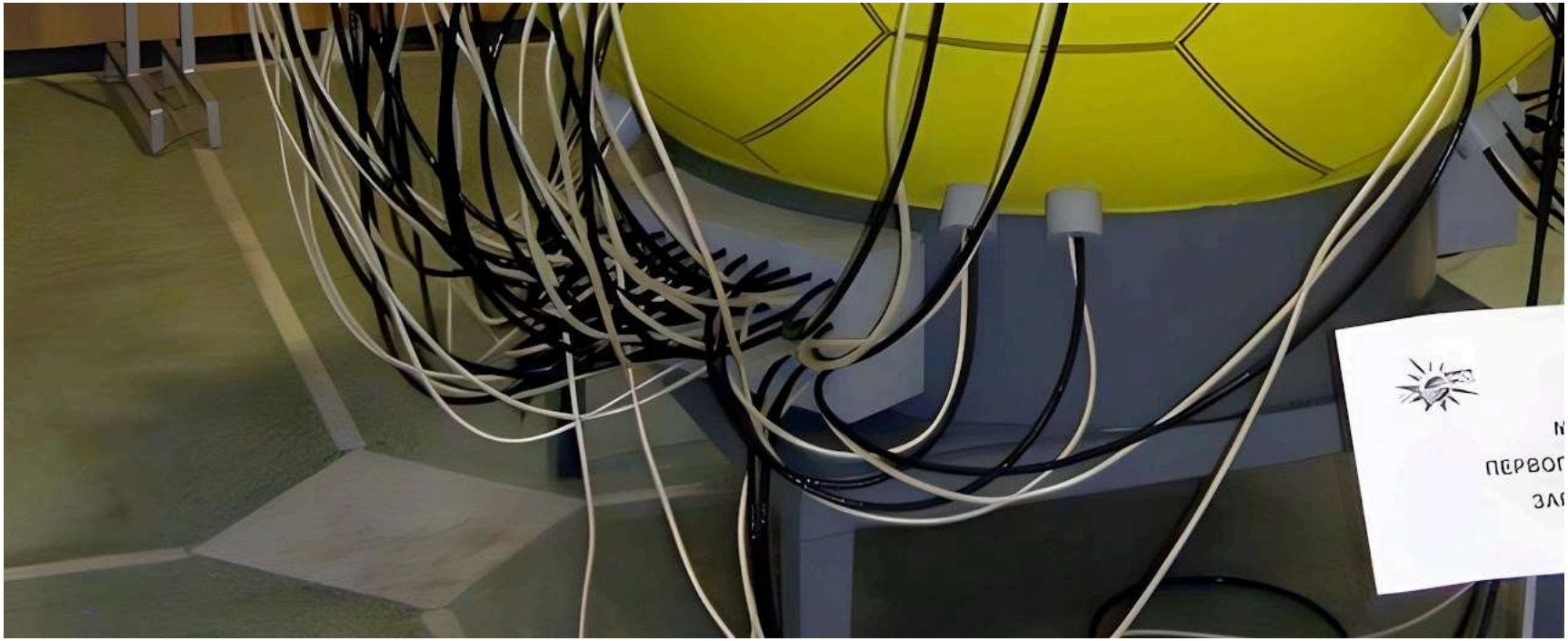
In 2000, upon completion of one of the de
Yuri Nikolayevich took a direct part, he was awa
of the Russian Federation (posthumously). He v
Orders of Lenin, the Order of the Red Banner
"For Labor Valor".

were simpler in design and manufacturing technology.". (Tip: to translate Russian to English from a low quality image scan, upscale the image of the text with **Zyro**, and then translate the result using **Yandex translate**.)






ЛЕТОПИСЬ ВНИИТФ





The thermonuclear charge to equip the first domestic intercontinental ballistic missile (ICBM) R-7. The charge had a capacity of 3 megatons of TNT equivalent. The length of the rocket is 31.4 m. The range of the rocket was 8500 km. It launched Sputnik 1957 and the Vostok-1 spacecraft piloted by Gagarin in 1961.



The thermonuclear warhead for the first R-36 ICBM was tested in 1962 with a yield of 2 Mt. Th range of the missile was 12,000 km.



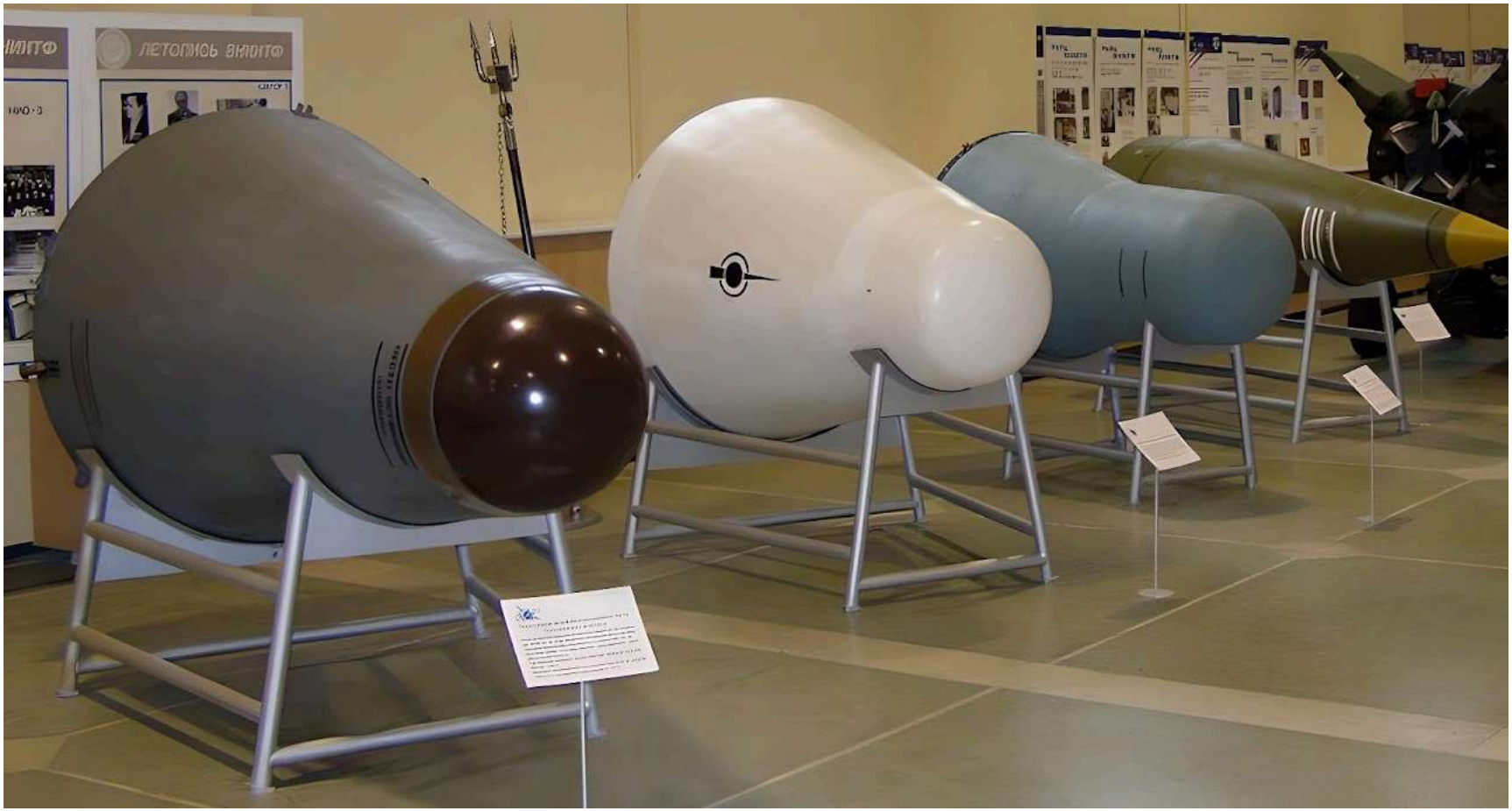




Temp-S operational tactical missile. Th length of th missile is 12.3 m. The power is up to 300 kt, tl range of the missile is 900 km.

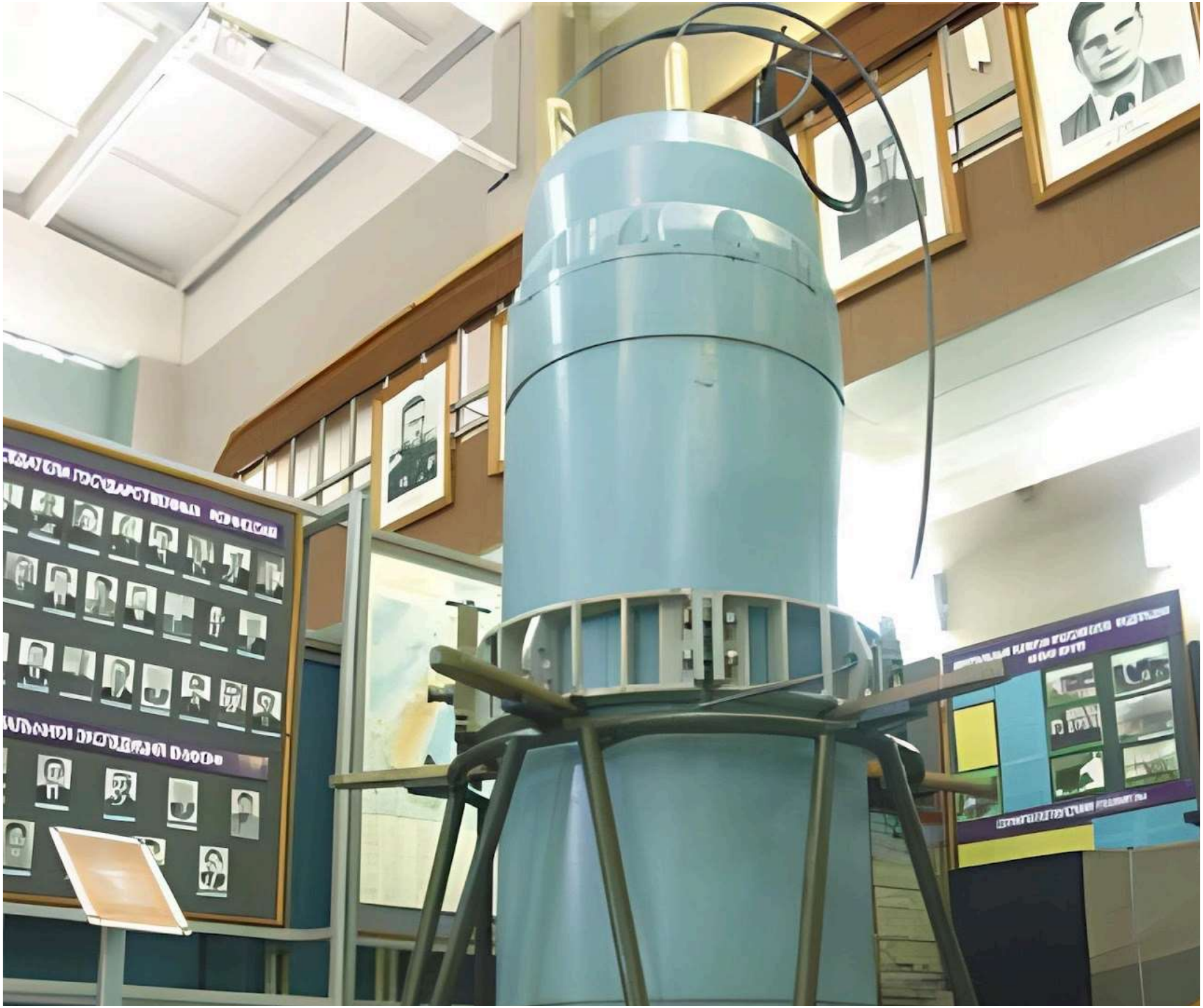
SOURCE: http://www.vniief.ru/about/museum/excurse/4edbf100497d7a42b9a3bb971ecf5820




ЛЕТОПИСЬ ВНИИТФ


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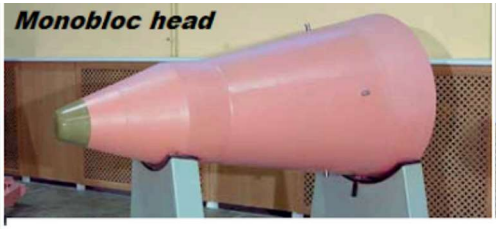

Nuclear Weapon Museum in Snowtown aka Snezhinsk at Chelyabinsk







1st ever Russian MIRV warhead,210 kg each; first put into service in 1978.



Monobloc head

Russian 370 kg thermonuclear warhead for missiles, put into service in 1978.

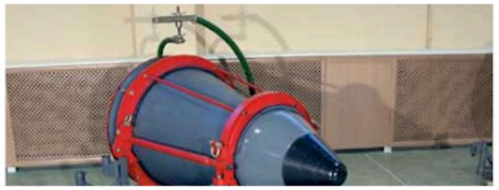


1st Russian MIRV for SLBM submarine missiles, put into service in 1974: mass is 170 kg, a small-sized thermonuclear charge allows placing three warheads on one launch vehicle



Monoblock head: 406 kg, ent service in 1974.

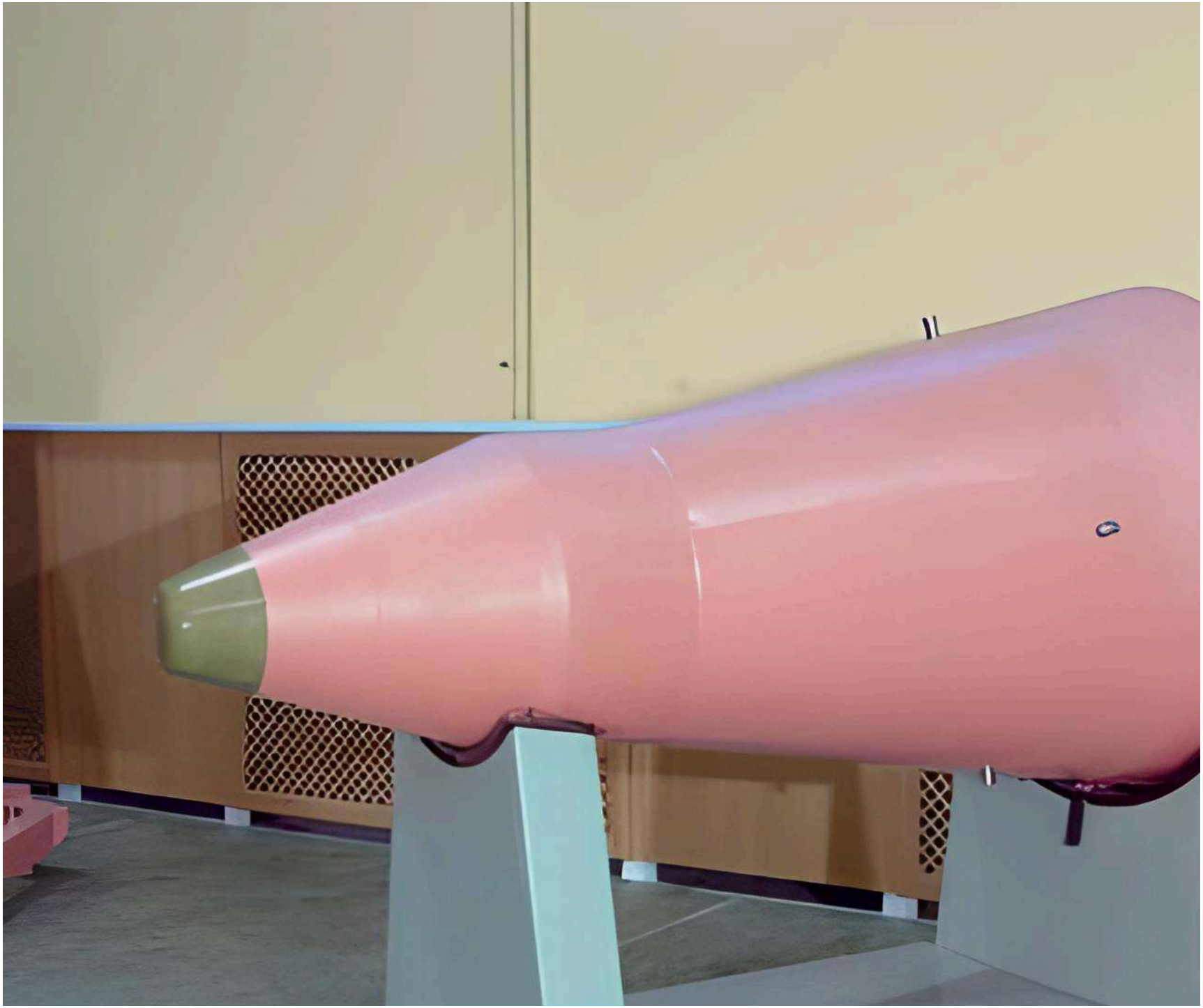


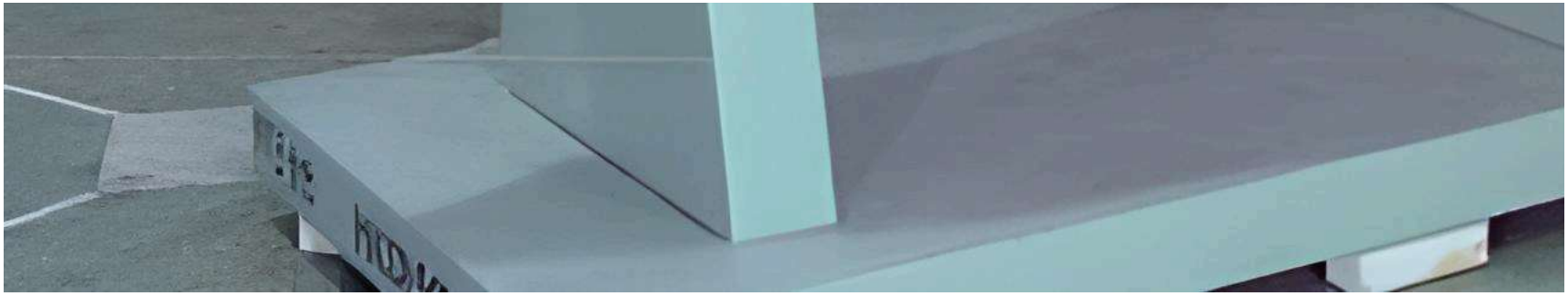








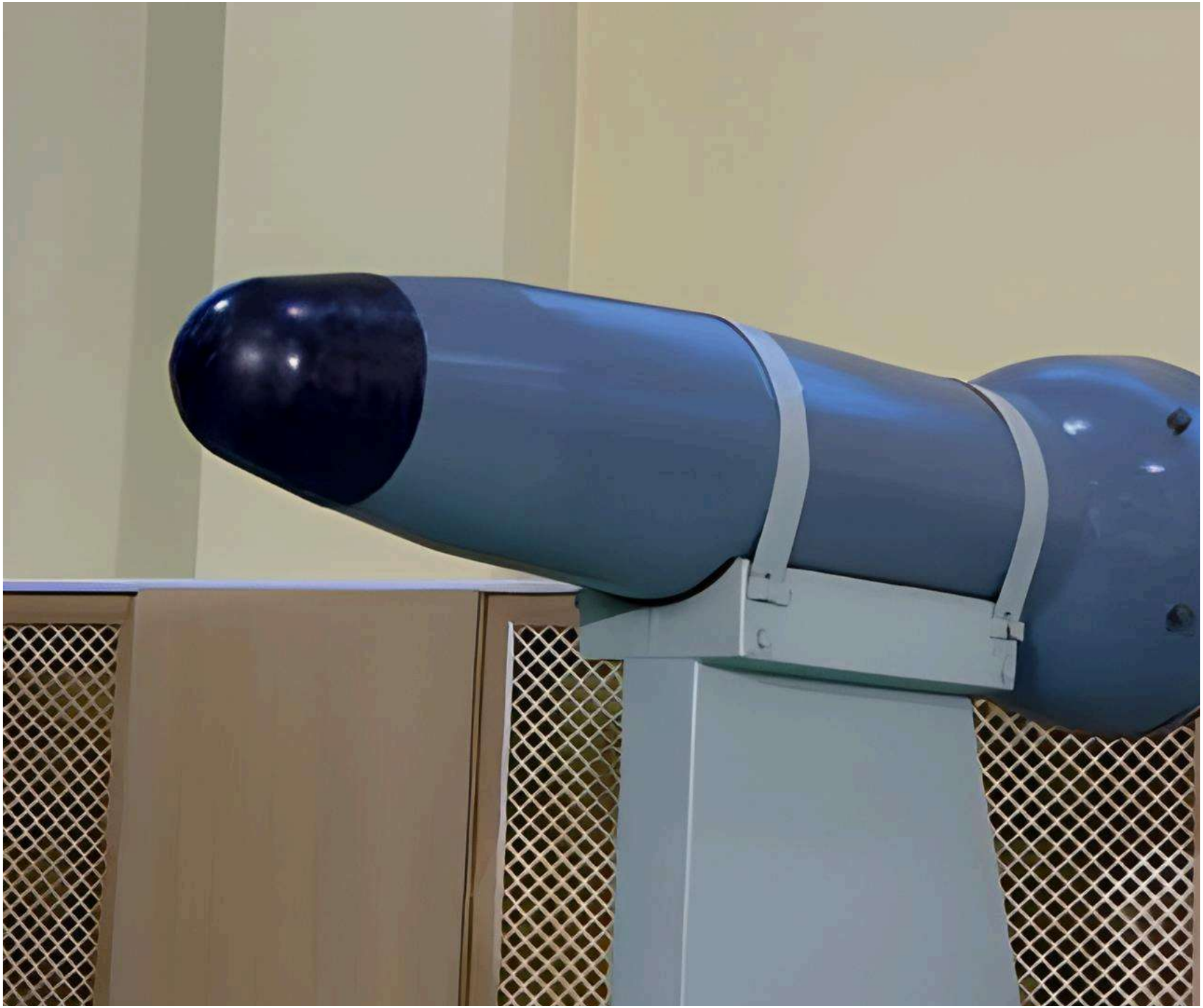


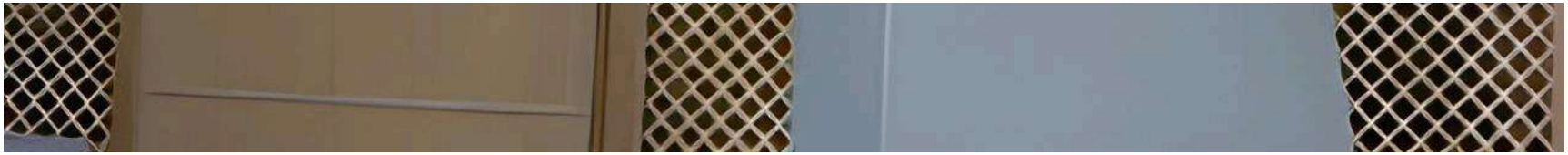



400 kt Alarm Clock 1953 H-bomb (Teller's 1947 design, an externally-boosted implosion bomb)

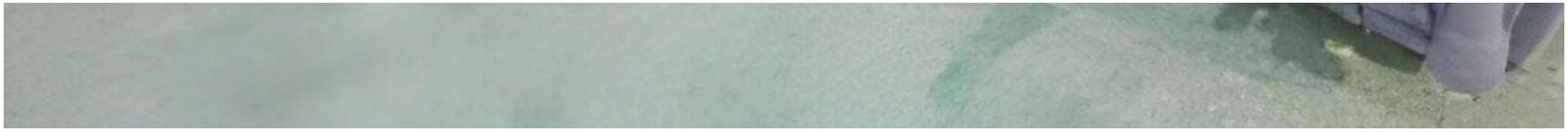



400 kt 1953 Russian test of Teller's externally-boosted
Alarm Clock H-bomb







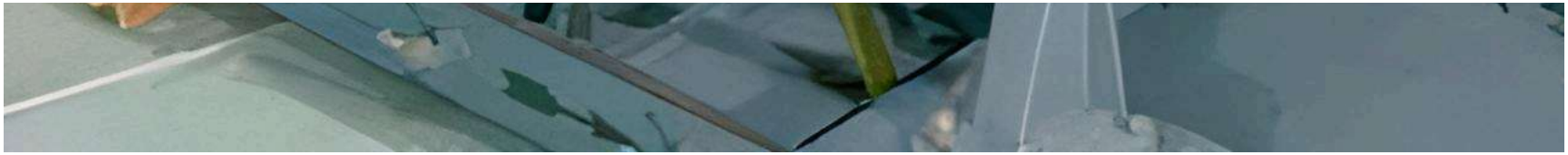


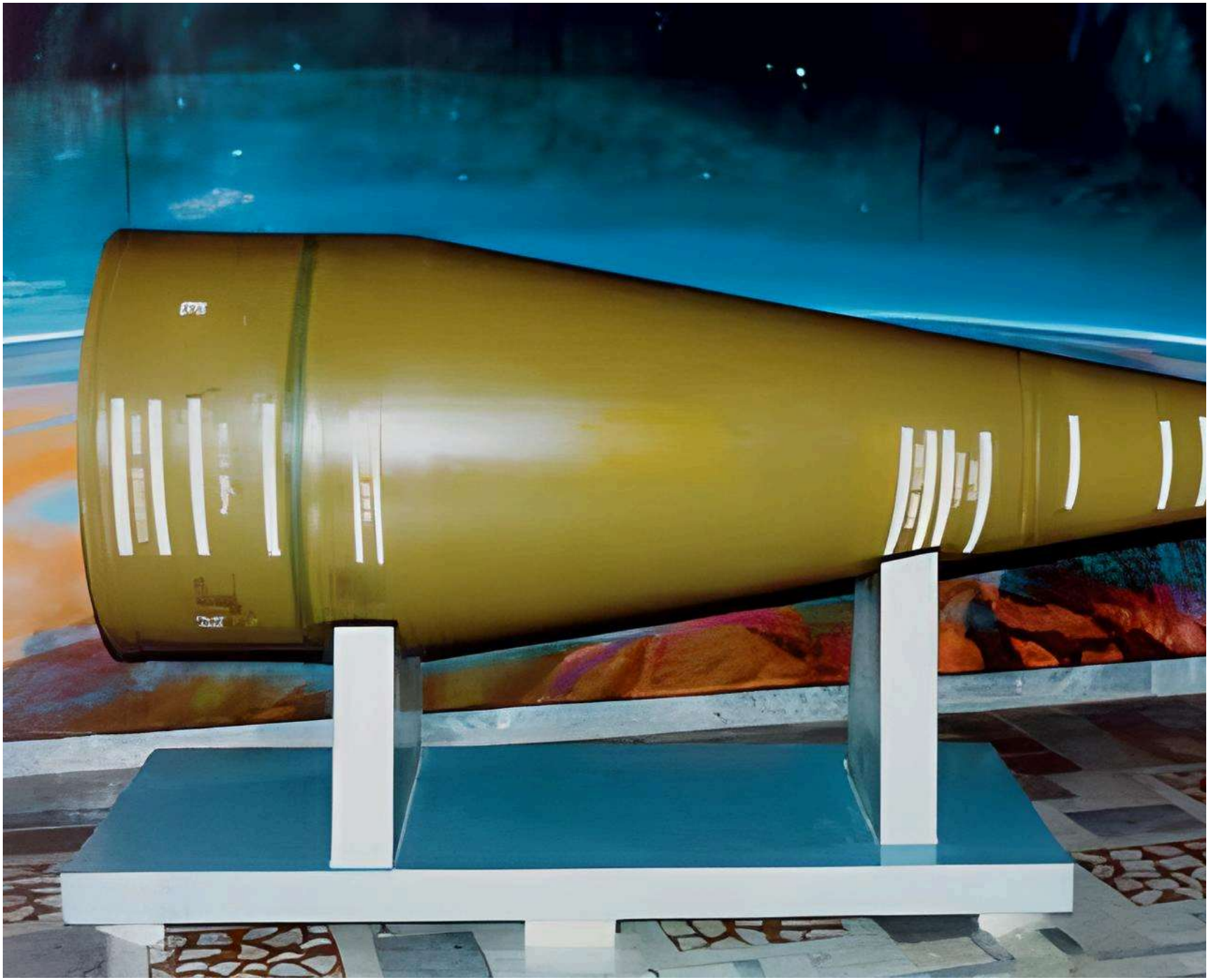




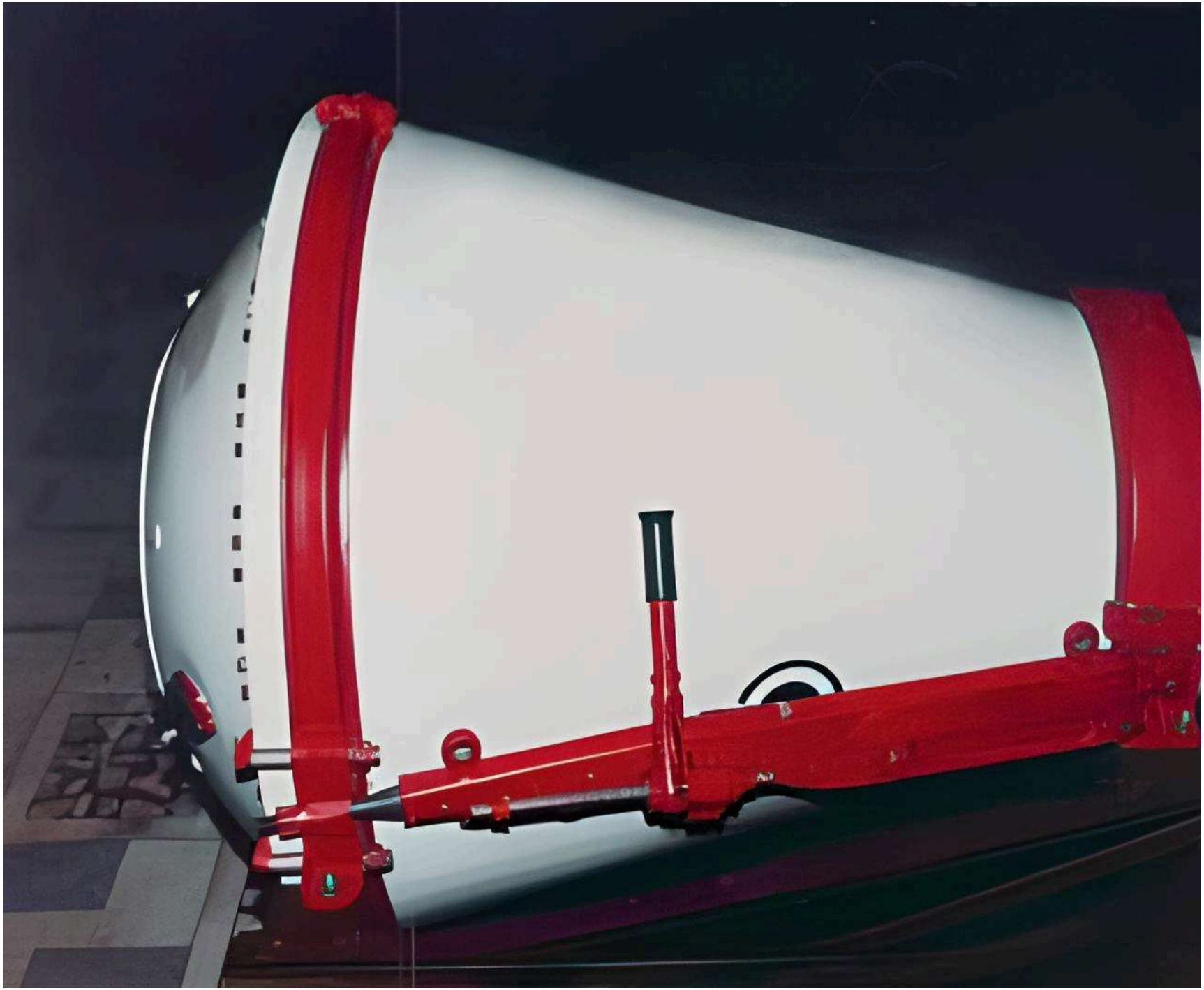




















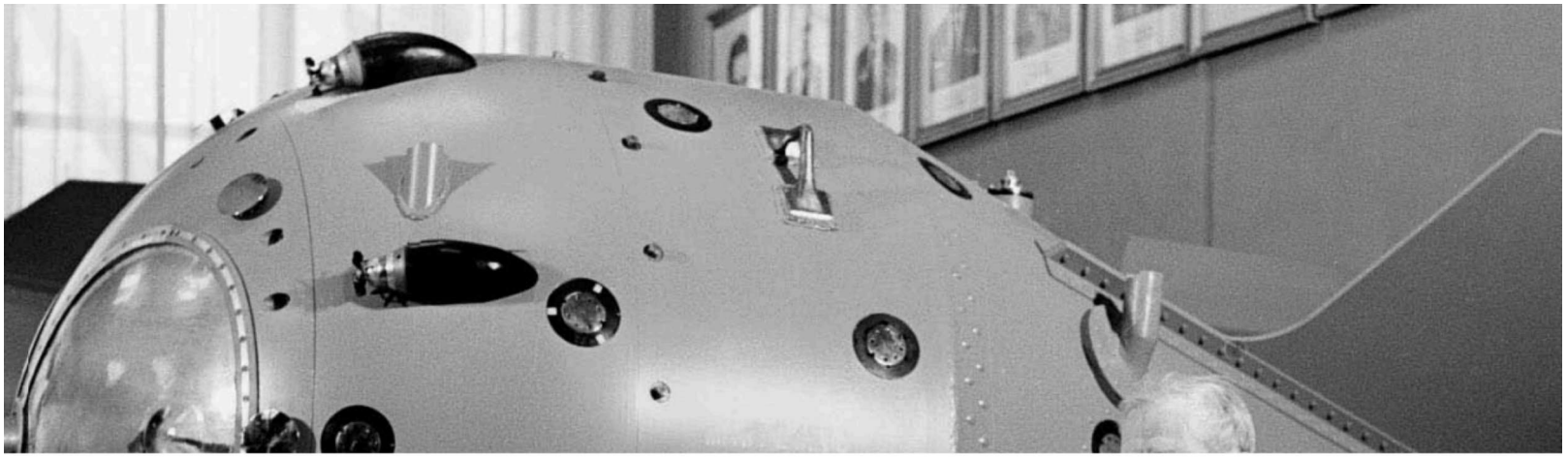







1949 design (courtesy of Dr Fuchs, David Greenglass, et al.)






Russian 1st serial nuclear warhead


SOURCE: v mire nauki: special issue 2015






Military-Today.com





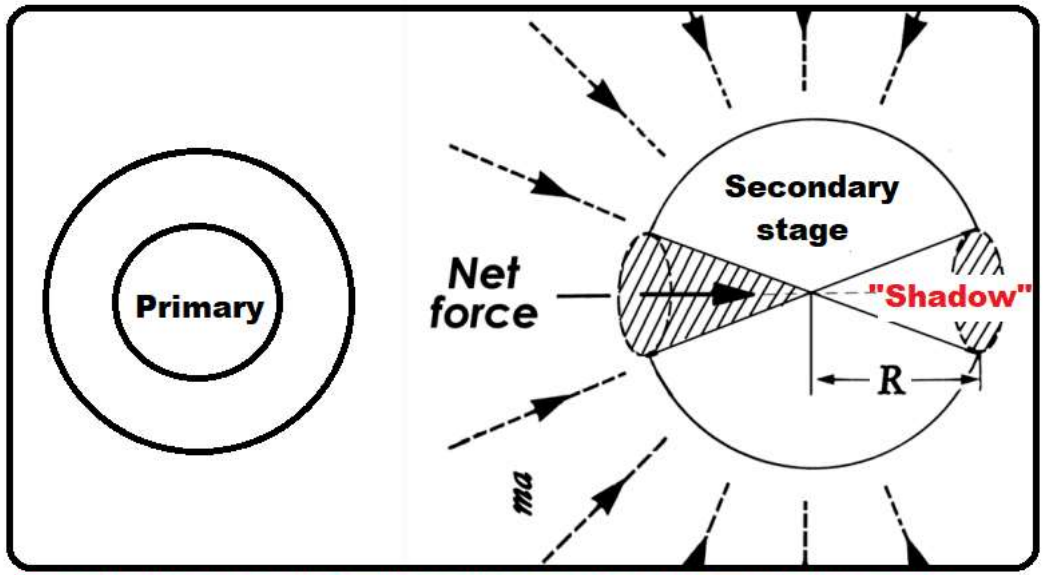

ЛЕТОПИСЬ ВНИИТФ
ЛЕТОПИСЬ ВНИИТФ

ABOVE: the precise nature of Putin's nuclear threat, photos from **both the Russian nuclear weapons labs museums** (older stuff is in Sarov, but the latest Russian very small MIRV warheads whose shapes reveal design data are in the **RFNC-VNIITF Museum at Snezhinsk including the pink painted warheads which are not in the Sarov collection**). The first two-stage 1.6 megaton yield Russian thermonuclear weapon, tested in 1955, RDS-37, had a spherical secondary (fusion) stage which required isotropic compression (unlike early American cylindrical designs). The Russian design omitted the plastic foam used to fill the radiation channels in the early UK two stage warheads (and modern W87 and W88 etc.) to deliver x-rays isotropically to the secondary stage. Instead, the Russian design used *precise geometric mirroring of x-rays by a large (1.5m diameter) ellipsoidal (prolate spheroid) shaped case, with the fission primary at one focus and the secondary stage at the other* (legendary Russian thermonuclear warhead designer Yuri Trutnev has confirmed this use of a lead lined case, a reasonably effective x-ray mirror - it isn't a perfect mirror since the "reflection" is accompanied by a lot of absorption of radiation - in the RDS-37 and later designs, with low-density material merely used as an x-ray absorber as a surface covering on the spherical secondary charge and not as a radiation channel filler - as discussed later in this post, below). This design - *without plastic foam filling the radiation channel* - was first used by America a year later, as the Egg device tested during Operation Redwing shot Huron (discussed and illustrated later in this post). It has its advantages: faster and more efficient compression with less risk of neutron pre-initiation of fissile materials in the secondary stage, since x-rays are slowed down by plastic foam, but travel faster than neutrons if simply reflected from the case. Therefore, when using the outer case as an x-ray radiation mirror, the speed of delivery of the x-rays to the secondary (to compress it) is faster than the speed that neutrons can arrive, so you don't need a neutron interstage barrier the way you do for devices employing a plastic foam filling, which slows down the x-rays delivery time and allows more neutron fission in the secondary to occur before full compression by x-rays.

Anything large in the case which creates x-ray "shadow" zones increases anisotropy of x-ray delivery to the secondary stage. This problem doesn't exist for the early American cylindrical stages, where the compression geometry is simply axial symmetry, i.e. radial compression in 2, not 3 dimensions. (To double the density of the secondary, radial compression of a cylinder requires a 29.3% reduction in radius, compared to just a 20.6% reduction of radius for spherical compression to achieve similar doubling of density.) But this outer case x-ray mirroring also has the disadvantage that the overall diameter of the outer radiation reflecting case must be *large in comparison to the diameter of the spherical secondary charge* (at least several times larger), or you do not get a sufficiently isotropic compression of the secondary stage (i.e. similar compression from all directions), because if the case is too small, the finite size of the secondary stage itself blocks reflected radiation from hitting it on the opposite side to that in proximity to the primary stage, which reduces compression, efficiency, and yield. *This is just a simple shadowing problem that you can see in a room lit by daylight from a window. If you place a large object in front of the window, it creates a shadow behind it, so it is not isotropically illuminated (i.e. lit equally on all sides).* ***If you place a smaller object in front of the window rather than a huge object, this shadowing problem is reduced or even eliminated because enough light can get into the room around the object, to be reflected back on the far side of that object by the walls of the room - particularly if you have mirrors on the walls - since the mirrors can then reflect light back so that the object is illuminated more uniformly on all sides (isotropic exposure, as opposed to anisotropic - unequal - exposure of all sides; for a diagram illustrating a suppressed example of the effects of a certain kind of fascinating anisotropic radiation exposure, please - for example - see my very brief 1-page long PDF paper linked here!****).*



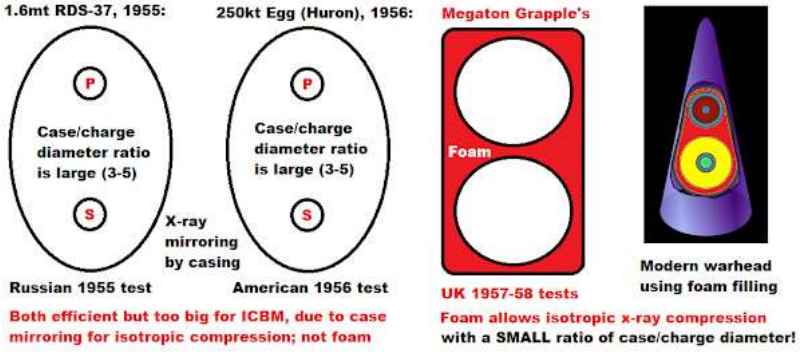
Anisotropic (unequal from all directions) x-rays on 2nd stage:



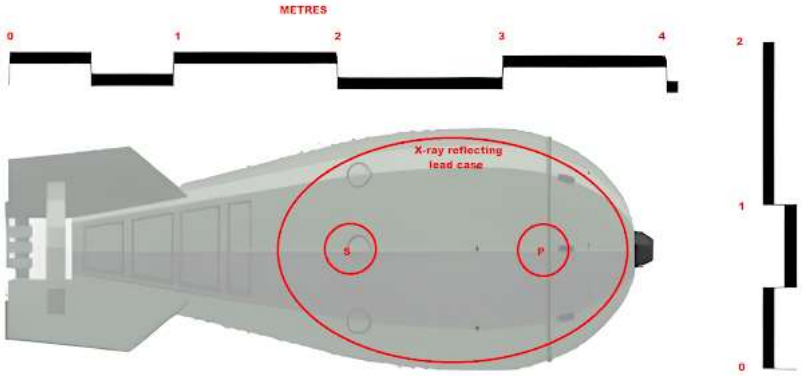
Second stage is not uniformly compressed due to x-ray shadow on side furthest from primary stage. Solutions: (1) put a partial shield between the two stages to try to "level up" the x-ray exposure on each side, (2) use foam to slow down and diffuse the x-rays to a uniform concentration everywhere in the case (even on the far side), (3) use a huge case that focusses x-rays uniformly.

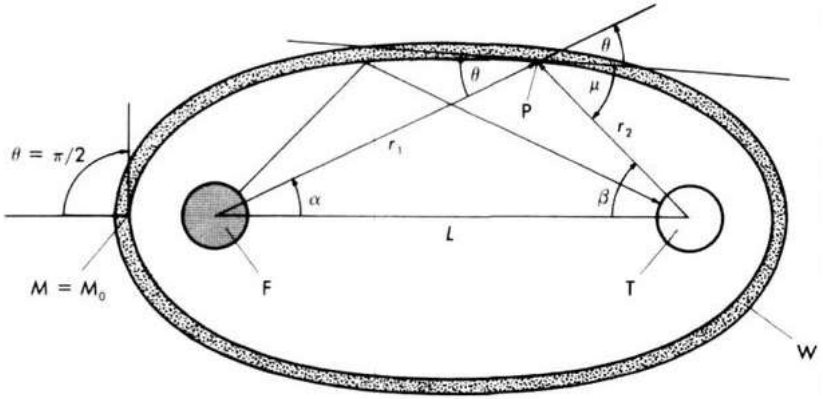
ABOVE: illustration of the problem of the anisotropic x-ray exposure of the secondary stage and some of its possible solutions, namely fill the case with foam to slow down and diffuse the x-rays to a uniform concentration everywhere in the case (a terrible idea for several reasons, e.g. it reduces recoil ablative impulse, allows neutrons time to arrive and pre-detonate any fissile material in the secondary stage, and it means the outer case has to hold the whole thing together for longer while the fusion burn hopefully starts, but this is nevertheless still used in Western devices), make the case huge so you can reflect x-rays more uniformly on to the far end (right ride above) of the secondary stage, use two primaries - one on each side of the secondary stage - as Russia does still, or design an "interstage" shield to go between the two stages above to try to even-up the exposure on each side of the secondary stage (but be careful to design it well, or you will over-shield the secondary and it won't get compressed at all!). The 1958-tested double primary Russian solution has the genius that easy to design: you don't need to bother to make careful design calculations at all!

Use of foam in modern warheads to minimise outer case size for spherical secondaries



RDS-37: first two-stage Russian H-bomb, 1955



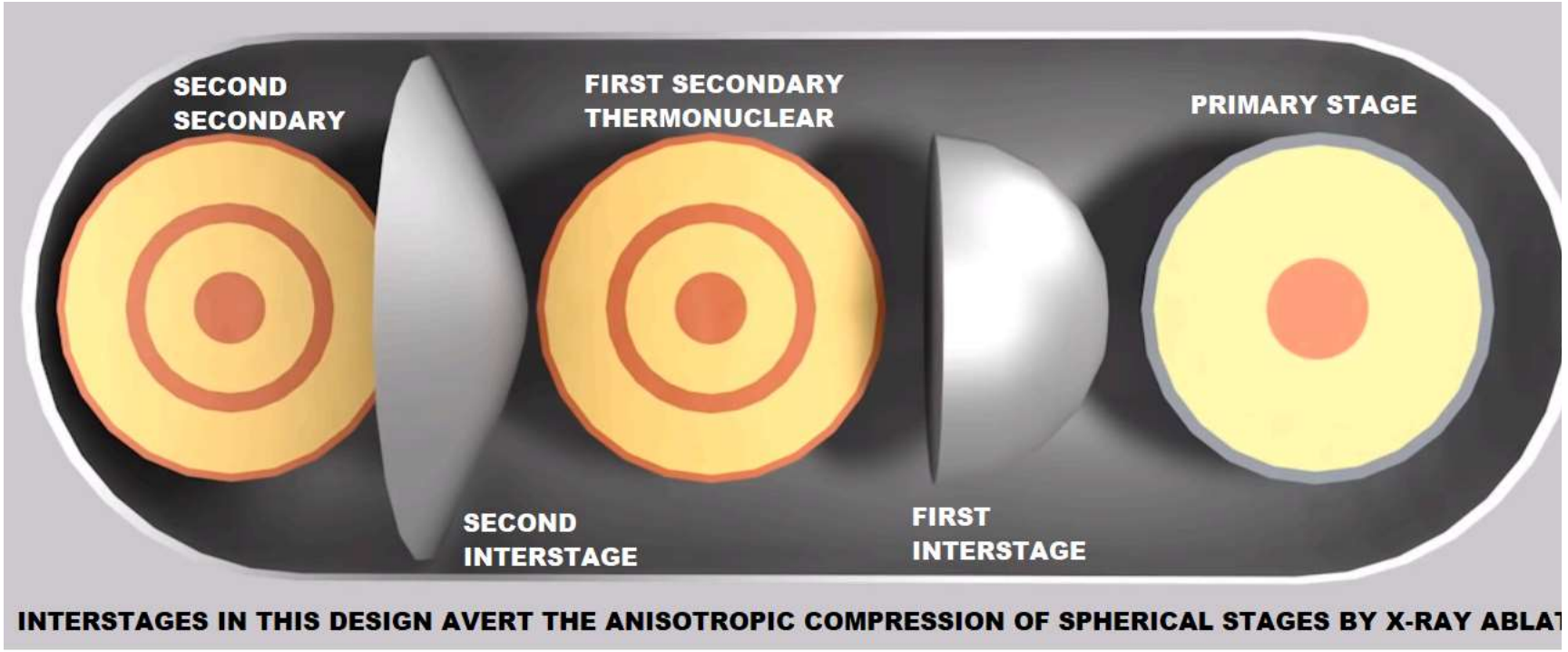




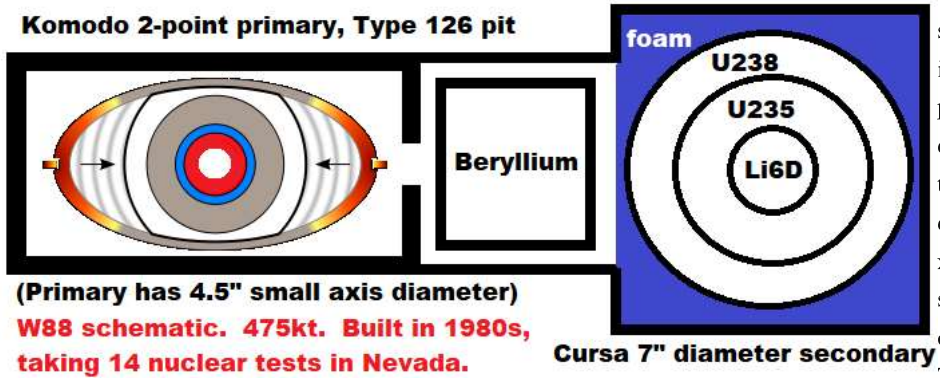


ABOVE: two versions of the RDS-37 first Russian nuclear weapons design. The first shows RDS-37 as the simple prolate spheroid elliptical system for x-ray mirroring, fitted into an RDS-6 case as shown on a **globalsecurity.org page** (the RDS-6 case was used for the earlier 1953 400 kt Alarm Clock externally boosted device). Actual film from the 22 November 1955 test of RDS-37 show a longer bomb, probably with an added parachute to slow the bomb down while the delivery aircraft escapes (the 1953 RDS-6 test, unlike RDS-37 in

1955, didn't need a parachute, as it was a near surface burst). **The second illustration is from a Russian language source (Military Russia, Бомба с зарядом РДС-37) showing a slightly different variation in which there is a very clever concave shield used between primary and secondary stages to try to achieve uniform (isotropic) irradiation of the spherical secondary stage with x-rays**. The source given is not a declassified report but a **Russian youtube video**. The problem is that this convoluted design, while simple to draw, is very complicated to design in terms of calculating the sizes and shapes of the various elements for optimum performance, requiring 2- or 3-d simulations by computers unavailable at the time, even in America. It is more likely to be the basis of the 500kt two-stage single primary devices developed in 1958 and used in the 50mt Tsar Bomba (discussed and illustrated later) than the first 1955 test of a two-stage device. The diffulties with the isotropic compression of spherical devices was a key reason why early American bombs had cylindrical secondaries with just radial compression not isotropic compression; they are far more straightforward for design calculations, because you don't have to worry about how to get radiation to the far side of a sphere! In other words, you don't need 3-d calculations. The simpler prolate spheroid case, with primary and secondaries at the two elliptical focii, is easier to analyze mathematically without a computer using straightforward geometrical considerations (**cf. Winterberg's 1981 book *Physical principles of thermonuclear explosive devices,* Fig. 4 on page 28 and discussion of x-ray mirrors on page 32, as shown later in this post**), and thus more likely what was tested in 1955. This is because there is less to go wrong, and it is easier therefore to get a definite result if the design has an error; whereas, if you test a design with *lots of innovations, and it fails, you learn nothing because you don't know which of the many factors caused the failure* (it is not even the case that you know that *one* thing has gone wrong, which can be discovered by elimination after many changes and tests, because there could be *several different design failure causes all working together, in a radical product* with lots of innovation!). The same youtuber also has a **video** of the design of the 50Mt Tsar bomba which is also incorrect, showing a more modern device with a single primary stage (completely debunked below in this post, since that 50mt bomb was provably set off by two 500 kt thermonuclear charges). In both designs above, the overall bomb case diameter is at least three times the diameter of the secondary charge, which is necessary to prevent an x-ray shadow on the side of the secondary furthest from the primary stage, resulting in anisotropic compression.



Double secondary design tested by UK during Operation Grapple Z3 (800 kt) on 11 September 1958 at Christmas Isla

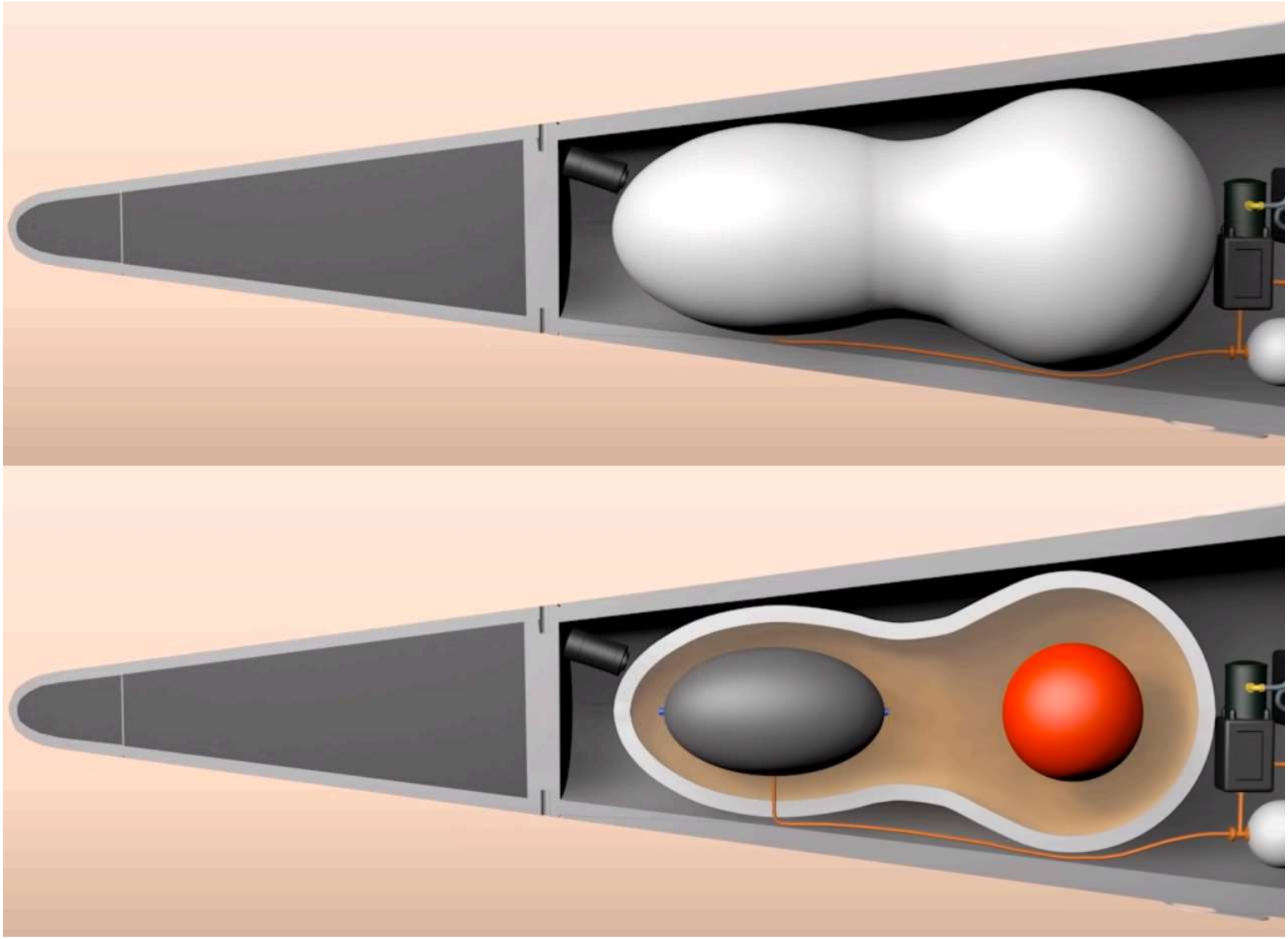


ABOVE: cartoon-style (non-blueprint) sketch of the problems of designing the interstage to stop neutrons from the primary stage from pre-detonating and deforming the fissile U235 (oralloy) in the secondary stage, while x-rays are diffusing (relatively slowly, compared to x-rays in a vacuum) through the foam shown in blue, to allow isotropic compression of the secondary stage. This requires detailed 3-d computer simulations and nuclear tests for verification, and is very difficult design engineering to get right. Traditionally, the light weight interstage has been beryllium, a toxic brittle material, for its transparency to x-rays and opaqueness to neutrons, while not being excessively heavy for a missile payload. There has been a recent effort to replace the toxic, brittle beryllium interstages with safer, more durable interstages made of alternatives like

boron, cadmium and lithium. (For aircraft delivery, where weight is less crucial than for missile warheads, U238 can be used as the neutron shield. But if weight is not an issue, you could simply have a clean secondary stage, comprising of Li6D and lead or tungsten pusher, without any fissile material, so then you don't need a neutron shield interstage!) But the more fissile oralloy there is in the secondary stage of a W88 warhead, the closer it is to criticality, so the greater the complexity of the design to keep primary stage neutrons from predetonating it, while still allowing sufficient channelling of x-rays. This is a complex design trade-off to get right, requiring sometimes multiple nuclear tests and re-designs, which explains why detailed data is still classified secret. (Not shown in the sketch is a thick neutron shield cylinder enclosing the entire secondary stage to reduce its vulnerability to predetonation by neutrons from defensive nuclear warheads from the Russian ABM system. When such a U238 neutron shield shell is shown in diagrams, it is usually misinterpreted as some sort of tamper or reflector to help the reaction! In addition, the primary and secondary stages are simplified. Fissile material would have a hollow core supplied with D+T boost gas from an external flask, prior to detonation. There is also the external x-box with capacitors that must be charged up with HV from a battery powered inverter prior to detonation, supplying large parallel current pulses to detonators and neutron initiator tubes. These are also safety features, helping to ensure that several stages of preparation must be undertaken in order to achieve a full-yield detonation, so the weapon is relatively safe in an accidental fire or impact.)

One of the biggest secrets of thermonuclear weapons became clear from the "clean" H-bomb research at Operation Redwing in 1956; the Zuni (15% fission, 3.53mt total yield) and Tewa (87% fission, 5.01mt total yield) were basically identical designs, but U238 in the Tewa device was replaced with lead in Zuni, and Zuni was topped up with extra li6d to try to compensate. As the results showed, although fusion is on paper more efficient than fission, in reality it was not possible in that design to get as much yield out of the cleaner device. In other words, in the dirty design, the fusion stage is just used as an external boosting tool to release high energy neutrons to fission U238, which produces most of the yield. An exception to this is the more efficient pusherless pulse-shaped isentropic compression system tested in the Ripple II device in 1962, discussed later, where it is claimed by its designer Nickolls that a higher efficiency of thermonuclear burn was achieved than in pusher devices (this isn't reflected in the overall yield/mass ratio of the entire device, which was just a prototype; we're talking just about the yield/mass ratio of the fusion capsule in Ripple II, not the entire prototype bomb whose mass is not relevant to a final warhead system).

"To form the direction of energy transfer, at the suggestion of A. D. Sakharov, the [1.6mt RDS-37] primary and secondary modules were enclosed in a single shell, which had a good quality for reflecting X-rays, and measures were provided inside the charge to facilitate the transfer of X-rays in the right direction. Yu. A. Trutnev in the course of this work proposed a method for concentrating the energy of X-ray radiation in material pressure [*a low density x-ray absorbing layer around the secondary stage, discussed later in this post with quotations from Trutnev himself about it*], which made it possible to effectively carry out radiation implosion. During this development, he also proposed a method that determined the predictability of the configuration of channels for the transfer of x-rays, which later found wide application in two-stage thermonuclear charges. ... In this case, the problem of ensuring spherically symmetric compression of the secondary module was radically solved, since the time of “symmetrization” of energy around the secondary module was much shorter than the compression time of this module. ... The fact is that the overall mass parameters of the RDS-37 charge and the first samples of thermonuclear charges of the USSR that followed it and the first thermonuclear charges of the USA are fundamentally different. The characteristic value of the ratio of length to diameter of the first thermonuclear charges of the USSR is less than 2, and for the first thermonuclear charges of the USA it is 3.2–4.8.This difference indicates fundamental differences in the structure of the secondary modules of the first thermonuclear charges of the USSR and the USA. The thermonuclear charge modules of the USA had a cylindrical



configuration, while the thermonuclear charge modules of the USSR had a spherical configuration." - I. A. Andryushin, A. K. Chernyshev, and Yu. A. Yudin, Creation of the first samples of thermonuclear weapons, http://wsyachina.narod.ru/history/coretaming_5.html (deleted

site, but available now on Wayback Machine at **https://web.archive.org/web/20130515010737/http://wsyachina.narod.ru/history/coretaming_5.html**).

In the sense the Russians I. A. Andryushin, A. K. Chernyshev, and Yu. A. Yudin (above quotation) argue, that America first tested thermonuclear weapons with cylindrical "pipe" secondaries whereas Russia was straight-in with the spherical secondaries now used in compact MIRV warheads, Russia seems to have been ahead in the 50s. The Russian design of 1955 was essentially duplicated by the American Egg design (Redwing-Huron) of 1956. But it was bulky because to get isotropic compression efficiently of a sphere using radiation mirroring from the inside of a prolate spheroid reflecting case, the case needs to be at least 3-5 times the diameter of the secondary stage (unlike getting isotropic compression from plastic foam, where you just need a few cm wide radiation channel!). So Russia wasn't ahead, unlike Britain which in 1957-8 successfully used spherical secondaries (like Russia), but with plastic foam in the radiation channel (unlike Russia) *to make the secondary stage compression isotropic while reducing the outer case size to a minimum*. If you just use the outer case as a mirror (as the Russians Ya. B. Zel'dovich, Yu. A. Trutnev, and A. D. Sakharov did very successfully with their 1.5m diameter RDS-37 in 1955, and the Americans did with their Egg device in the Redwing-Huron test of 1956), and don't instead use foam to fill the case to absorb and re-radiate x-rays isotropically, you will always need a *REALLY HUGE DIAMETER* outer bomb case for the geometry to work efficiently! This is due to the immutable mathematical laws of geometry. So although they were able to use a single primary stage with success in 1955, they had a huge problem with trying to miniaturise that design without going back to fission bomb yields.

There were only three possible ways to change their design to get their huge 1955 H-bomb small enough physically to fit into the warhead of an ICBM: (1) change the shape of the secondary to the simpler to compress geometry of a cylinder, where you ignite the end closest to the primary stage and then an auto-catalytic self-burning wave is hopefully initiated (as used in the early 1952 American Ivy-Mike test), but the Russians had already investigated and discarded Teller's original Superbomb "pipe" (the Russian word for it); (2) fill the radiation channel with plastic foam to make the energy delivery isotropic to the secondary, but this is less efficient since the x-rays are delivered more slowly than by simple case reflection (through having to be repeatedly absorbed and re-radiated in a mathematical "drunkard's walk" going in all directions by the electrons in the foam), and this x-ray energy delivery delay also allows neutrons to arrive and partly melt down, expand and pre-detonate any fissile materials in the secondary stage (unless you have an efficient neutron shield or interstage between the primary and secondary stage, which is hard to design effectively without good electronic computers, which the Russians then lacked); or finally (3) use *linear-implosion* of the final fusion stage, by using *TWO* primary stages, one on each side of the fusion stage, within a cylindrical casing, wired in a simple parallel circuit for simultaneous detonation. Linear implosion is never the most efficient solution, but it is necessary to get a very small diameter thermonuclear weapon for a ICBM warhead. So it turns out that the Russians use a very different approach to compact nuclear warheads than America and Britain. Yuri Trutnev in 2017 explained the details (this has now been deleted from the Russian site):

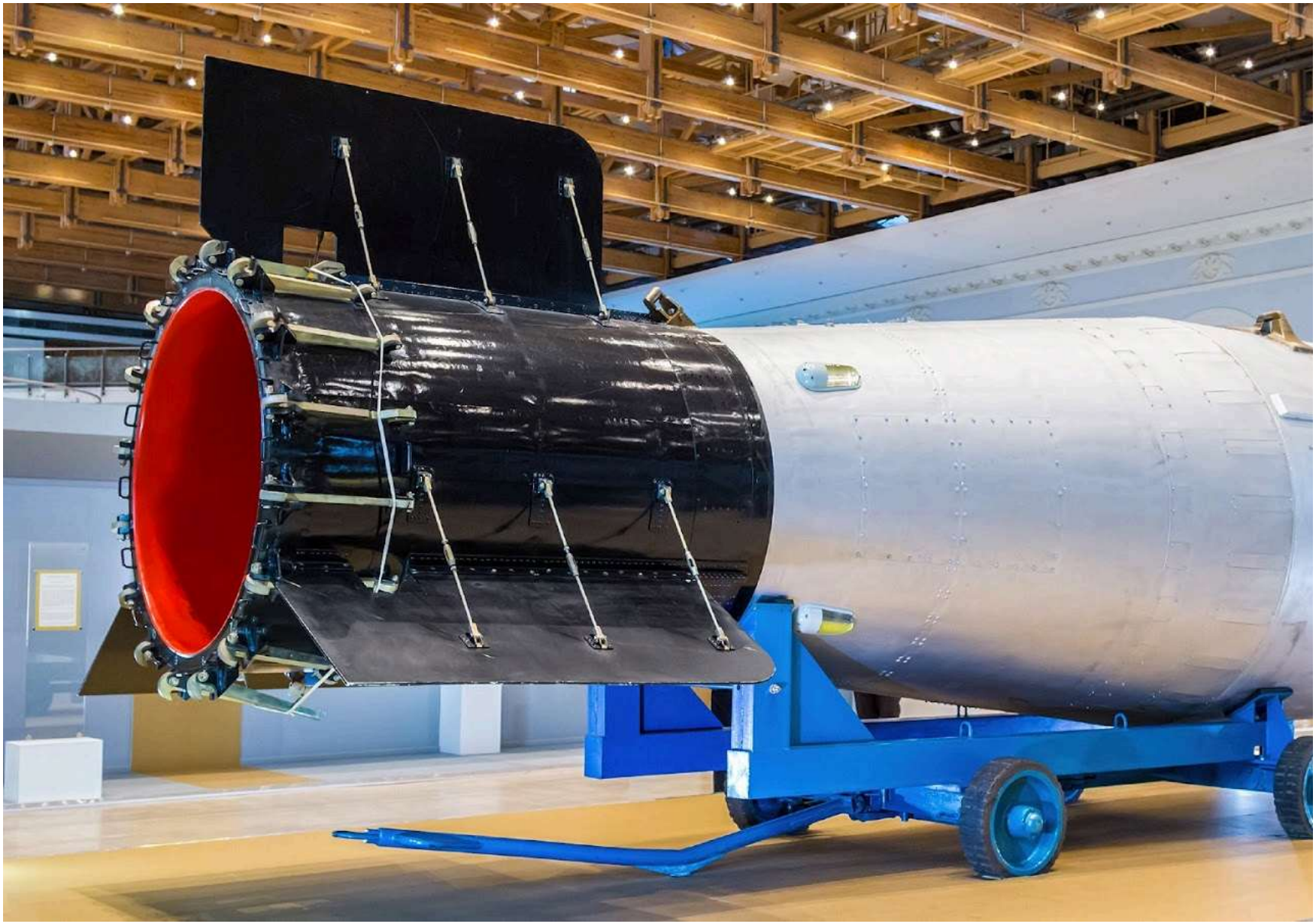
"... Avraamy Zavenyagin ... said - take a thermonuclear charge, surround it with atomic charges, blow them up at the same time, they will squeeze it. ... This idea was later developed by our theorist Viktor Davidenko. In fact, he proposed a scheme for the so-called two-stage charge - a casing in which there were spatially separated atomic and thermonuclear units. The explosion energy of the primary atomic stage would be used to ignite thermonuclear reactions in the secondary stage. Our outstanding specialists Yakov Zel'dovich and Andrei Sakharov had great hopes for this scheme of so-called nuclear implosion. ... I did a lot of work on the theory of the efficiency of atomic

charges. I knew that when they explode, a lot of energy comes out in the form of x-rays. And I began to think about how to make it so that ***the thermonuclear charge is overlaid with a light substance - "coating", these can be chemical elements with a low number, having very good thermal conductivity, and with the help of X-ray radiation from the explosion of the primary atomic charge "coating" heat up. At the same time, its substance would evaporate outward, towards the radiation, and as a result, as during the movement of a rocket, a reactive impulse would be created, directed into the secondary charge*** and creating the pressure necessary for effective compression of the thermonuclear "fuel". ***But how was it possible to ensure a uniform, symmetrical effect of radiation on the spherical surface of a thermonuclear charge with a "coating"? Here I am stuck. ...*** **Zel'dovich proposed exactly how to direct X-rays, Sakharov showed that this radiation is not absorbed by the walls of the casing, but remains in it, and therefore a uniform effect on the surface of the thermonuclear unit can occur. And my idea is a "coating" of a light substance to transfer radiation to the required pressure.** ... I already had another idea in my head - a more advanced product based on a new principle for designing a thermonuclear charge. After testing the RDS-37, the next day in the evening I called my friend and colleague Yuri Nikolaevich Babaev to the bank of the Irtysh and said: "Yura, let's try to do just such a thing." And he agreed. We returned to Sarov and drew a charge diagram and proposed it. This product received an index of 49. I will not say what it is. Product 49 is similar to the RDS-37, but not in everything. They started laughing at us, this is all nonsense, nothing will work out for you. In short, they didn't support us because they didn't understand. ... We were supported by Igor Vasilyevich Kurchatov. The test of product 49 took place on the Day of the Soviet Army, February 23, 1958 at the test site on Novaya Zemlya. The success was very big. In 1958, several tests of products of different capacities based on the 49th charge took place. He went into a series, he was put on rockets, and this was already the basis of our country's thermonuclear weapons. ... I said to Khariton: "Yuli Borisovich, let's make a 100-megaton charge. Maybe then the West will understand that it would be pointless for them to increase their megatonnage further." He agreed. But here, for safety reasons, we also made a half-power charge, replacing the uranium-238 stage with lead. ... The Americans understood that they would not frighten us, but we would frighten them. And they lowered the power in their trials. We could have done more, but what's the point?" - Yuri Trutnev, *The creation of nuclear weapons is a special kind of creativity,* ria.ru/20171122/1509304656 22 November 2017 (this page has now been deleted, but is available on Wayback Machine at **https://web.archive.org/web/20220429180233/https://ria.ru/20171122/1509304656.html**)

To get small thermonuclear warheads for missiles, after successfully testing a compact linear implosion primary stage for nuclear artillery (detailed later in this post), at the suggestion of Yuri Trutnev, starting in 1958, the Russians began testing thermonuclear weapons having two compact primary stages, one on each side of a spherical or cylindrical thermonuclear charge, wired in parallel electrical circuit using large krytron vacuum tube switches to get simultaneous detonations and a more uniform compression of the secondary stage. This was because they lacked the computers America and Britain used to design smaller thermonuclear warheads where plastic foam was employed to deliver x-ray energy uniformly to a secondary charge from a single primary stage. Trutnev suggested replacing the two primary stages with two 500 kt thermonuclear weapons to achieve a 50 megaton clean test in 1961. But what is more important is that this whole approach was continued by Russia with more practical weapons, under the leadership of Yuri Nikolaevich Babaev (1928-86):

"**Yuri Nikolaevich Babaev became one of the main creators of the world's largest detonated bomb ("Tsar Bomba") with a capacity of 50 megatons, tested at the test site on Novaya Zemlya on October 30, 1961. ... In the future, the efforts of Yuri Nikolaevich Babaev focused on the fundamental improvement of thermonuclear charges, *for which he developed the theory of "double approach".* - http://www.biblioatom.ru/founders/babaev_yuriy_nikolaevich/**"

The use of two primary stages (or two whole thermonuclear devices, for higher yields) to compress a fusion capsule inside a narrow tube casing without plastic foam to make the radiation isotropic is like a linear implosion system for fusion charges: the central (main) fusion charge will be most compressed along the axis of the bomb than from the sides, so it can be elongated so that it becomes a sphere when compressed (below). This is avoided in US and UK weapons by the use of computer designed low density baffles of plastic foam to make the x-ray energy *isotropically* compress the secondary (the foam doesn't do the compression, the x-ray ablation of the secondary does it; the foam is merely used in modern Western designs to reduce anistropic compression of the secondary, missed out by the Russian approach which uses two primary stages or two thermonuclear stages for larger devices, instead).



"The A6027 charge was tested on October 30, 1961 at the Novaya Zemlya test site. ... The creation of nuclear weapons by the Soviet Union, despite the hardships of the post-war period, has become an effective factor in deterring any aggressors from launching new global wars [*the aggressor is Russia, fighting democracies in Georgia, Crimea, Syria and Ukraine, eh*]. ... The young theoretical physicist Yu.A. Trutnev proposed the idea of creating a 100 Mt superbomb, which could frighten foreign skeptics who believed that Soviet nuclear

scientists were significantly weaker than American ones [*subservience and slavery to authority is always a weakness compared to free thinking trial-and-error based innovation for profit and to supply customers with the latest products they want and need; the backwardness of Russia in microelectronics for decades illustrates the failure of centralised control most clearly; free countries also have this problem but the people are generally better capable of overcoming the tyranny*]. The idea was supported by Academicians A.D. Sakharov, Yu.B. Khariton and Ya.B. Zeldovich. The top leadership of the country, having agreed on the issue with scientists, decided to create and test super-powerful weapons. The final decision to resume nuclear testing and create a superbomb was made in July 1961, when the scientific leadership of KB-11 (VNIIEF) reported to N.S. Khrushchev on the possibility of developing a hydrogen bomb with a capacity of 100 million tons of TNT. ... [**Copying the USA, which opened a second nuclear weapons lab, Lawrence Livermore, to challenge its first lab at Los Alamos...**] In 1955, by decision of the Government, a second nuclear center was established - NII-1011 (RFNC-VNIITF) in Chelyabinsk-70 (now the city of Snezhinsk), where a third of the employees of KB-11 were transferred. ... After the adoption of the decree of the Government of the USSR on the resumption of testing of nuclear weapons in July 1961, KB-11 began emergency work on the development, theoretical justification and preparation for testing not only superbombs, but also a series of other nuclear weapons. Even before this decision, the theoretical physicists of KB-11 were distributed to develop "their" charges. Therefore, to develop a superbomb, it was decided to call Dr. Ph.D. Adamsky V.B., by connecting to it a theoretical physicist - a recent graduate of MEPhI Yu.N. Smirnov, as well as the initiators of the creation of the superbomb, Ph.D. Trutneva Yu.A. [center of photo below, in front of bomb] and Ph.D. Babaeva Yu.N. Academician Sakharov A.D. took over the development leadership. ...



"The situation was aggravated by the tight deadlines for the start of tests (09/01/1961), the lack of a computer park to carry out the proper number of calculations. I had to use all the computers of the Mathematical Institute of the USSR Academy of Sciences (mathematicians at KB-11 worked there at night and on weekends). And only on October 24 (6 days before the tests) was the final report on the design of the bomb and the theoretical justification completed. But even then A.D. Sakharov (already without a computer) additionally worked out the necessary improvements. A large number of serious innovations were applied in the design of the superbomb itself and its charge. ***A powerful thermonuclear charge was made according to the "bifilar" scheme: for radiation implosion of the main thermonuclear unit, two thermonuclear charges were placed on both sides (front and back) to ensure synchronous (with a time difference of no more than 0.1 μs) ignition of thermonuclear "fuel".*** KB-25 (VNIIA) finalized a serial detonation automation unit for this charge. It seemed to A.D. Sakharov that the calculations carried out on a computer were not enough. 2 days before the product was sent to the test site at 8 pm, Sakharov came to the workshop, approached the

product (the body of the bomb was open and access to the charge was provided from both sides). Andrei Dmitrievich looked inside, felt the construction, then sat down on a chair in the corner ... the academician drew a sketch, ***where it was proposed to install lead belts 60 mm thick from the side of the initiating charges on the inner conical surface of the charge body.*** I call the director of KB-11 B.G. Muzrukov at one in the morning: “What should I do, after 36 hours, sending?” Answer: "Do as Sakharov said!" At 6.00 in the morning, the designers draw “squirrels” in the shop and after 4 hours the lead belts are ready (from the memoirs of the head of the assembly shop of the KB-11 plant A.G. Ovsyannikov). After 40 years, when, on the instructions of the director and first deputy scientific director of VNIIEF, Academician of the Russian Academy of Sciences Ilkaev R.I. In the most powerful computer center in Russia, VNIIEF, the calculations for the three-dimensional problem "Mimosa" were checked, it was confirmed that the absence of these lead belts would lead to a significant distortion of the radiation implosion ***sphere*** and a decrease in the explosion power by ~ 80%. So the thought of the academician turned out to be much more perfect than computers available at that time. ... In the history of Russia, a certain pattern was noticed in the creation of hypertrophied samples of unique products: the Tsar Bell (which did not ring), the Tsar Cannon (which did not shoot) and, finally, the Tsar Bomba (which was blown up with some excess of the calculated power - 52.5 Mt). ... only about 2 percent of the energy of the explosion came from the fission reaction, the rest of the energy from the fusion reaction ... The creation and testing of the most powerful thermonuclear charge in the world with a capacity of 50 Mt served as an impetus for reducing the arms race throughout the world. And this is the great merit of our outstanding nuclear scientists. [*In plainer words, Russia succeeded in starting the West on the road from nuclear superiority to arms control parity, allowing the dictatorship to survive longer before going bankrupt*.]" - A.V. Veselovsky, honorary veteran of the RFNC-VNIIEF, head of the scientific and testing department (in 1956-2009), laureate of the USSR State Prize, **http://www.proatom.ru/modules.php?name=News&file=article&sid=3364**

Yu. N. Smirnov, Academician

A fundamentally new approach was proposed by Yu.N. Babaev and Yu.A. Trutnev. It was a promising proposal in terms of downsizing, increasing power density and what is called miniaturization. It was not about the very small sizes. But now the charges really became weapons: they could be placed on certain carriers. The new charge was successfully tested on February 23, 1958. Within a year, on the basis of this idea, a rather large series of charges of various calibers was designed, including the smallest of them for that period.

Table 2. Heavy-duty nuclear explosions, USSR.

No. p / p (in brackets - the serial number of the test)	Explosion date	Conditions for the explosion	Power, kt	Comments
1(123)	10/23/61	air	12500	
2(130)	10/30/61	air	50000	The most powerful explosion in the world
3(147)	08/05/62	air	21100	
4(173)	09/25/62	air	19100	
5(174)	09/27/62	air	> 10000	
6(219)	12/24/62	air	24200	

Total capacity: > 136.9 Mt

In addition to six super-high power explosions ($E > 10$ Mt, **Table 2**) , the USSR conducted 22 megaton class air tests (1.5 Mt < E < 10 Mt) , which were carried out in the period 1955–1962 . All of them, with the exception of the explosion on November 22, 1955 near Semipalatinsk, were carried out at the Novaya Zemlya test site. **SOURCE: http://wsyachina.narod.ru/history/testing_ground_213.html (BEFORE THAT SITE WAS DELETED)**

"After the end of the moratorium in 1961, they returned to the task of creating a superbomb, but now it was a thermonuclear charge with an energy release of 100 Mt, which was to be placed in an aerial bomb developed according to the “202 project”. At this stage, the development of a new super-powerful charge was carried out in KB-11 on the initiative of Yu. A. Trutnev and A. D. Sakharova, the team of authors also included Yu. N. Babaev, V. B. Adamsky and Yu. N. Smirnov. Original solutions and accumulated experience made it possible to implement this development extremely quickly, and the charge was successfully tested on October 30, 1961. Among the features of this charge, it should be noted that the large volume of the charge (due to its high energy release), required significant amounts of X-ray energy for implosion. The developed nuclear charges did not satisfy this condition, and therefore, a previously developed two-stage thermonuclear charge with a relatively low energy release [~500kt] was used as the primary source of the “superpowerful charge” [TWO of them, one on each end of the main fusion stage!]. This [~500kt] charge was previously developed by Yu. A. Trutnev and Yu. N. Babaev. ... In 1962 Yu. A. Trutnev and V.S. Lebedev developed a smaller version of the superbomb with an energy release 2.5 times less than the 1961 version. The reduction in energy release and overall mass parameters made it possible to count on equipping a heavy ICBM with such a charge. The charge was tested in a non-full-scale version using passive materials [*lead* ablator/pusher and case lining] that

significantly reduced (as in the 1961 test) the release of radioactivity in the test explosion." - I. A. Andryushin, A. K. Chernyshev, and Yu. A. Yudin, *Development of the nuclear weapons program of the USSR,* http://wsyachina.narod.ru/history/coretaming_6.html (deleted page but it is still available on Internet Archive Wayback Machine here: **https://web.archive.org/web/20130921043813/http://wsyachina.narod.ru/history/coretaming_6.html**).

"The development of super-powerful thermonuclear charges was considered as an important task for both nuclear institutes of the USSR. The developments of nuclear charges discussed above, tested on October 30, 1961 and September 27, 1962, were carried out at VNIIEF (Arzamas-16 [now called Sarov]). As examples of the development of super-powerful charges carried out by VNIITF (Chelyabinsk-70) , one can cite devices tested on September 25 and December 24, 1962. In the first case, a charge was tested that was close in characteristics to the VNIIEF charge tested on September 27, 1962. The comparison shows that they were essentially duplicate designs. In the experiment on December 24, 1962, a super-powerful charge with a nominal energy release of about 50 Mt was tested under conditions of a non-full-scale explosion with a power reduced by about half. The test confirmed the expected characteristics of the charge. Note that in the test version, which is a high purity charge, the actual nuclear [fission and fallout] energy release was small. ... The first test for the same purposes [reduced fission yield proportion, i.e. cleaner] was carried out in the USSR on October 20, 1958 at the test site on Novaya Zemlya in a modification [lead replacing U238] of the previously tested "dirty" two-stage charge. The level of nuclear [fission and fallout] energy release achieved in the development was an insignificant part of the total energy, however, the total [fusion plus fission] energy release was significantly reduced compared to the base [U238 containing] charge. ... Already in 1954, it was realized that a non-nuclear explosion of a nuclear charge is accompanied by the dispersion of plutonium, which is part of it, with its subsequent fallout. The first experiment in which practical results were obtained in this regard took place on October 19, 1954, when an unforeseen failure of a nuclear charge occurred. ... The first experiment to study the "single-point safety" of a nuclear charge was carried out in the USSR on August 26, 1957, and, in essence, the USSR nuclear test program in the interests of security began to be implemented in 1961. A total of 11 experiments of this type were carried out during the period of atmospheric testing in the USSR. After the transition to underground nuclear tests, 14 more special nuclear tests were conducted for these purposes, as well as an additional 17 experiments as part of group nuclear explosions. ... The maximum nuclear energy release in the nuclear safety experiments was realized in the experiment on September 9, 1961. This value is close to the maximum energy release realized in the US nuclear safety tests during the period of atmospheric tests, which is 500 tons of TNT equivalent. [Nice to know Russia is concerned for nuclear safety!]" - *Nuclear testing and the creation of nuclear weapons,* http://wsyachina.narod.ru/history/nuclear_testing_1.html (deleted but still available on Wayback Machine: **https://web.archive.org/web/20130515005510/http://wsyachina.narod.ru/history/nuclear_testing_1.html**



50 megatons, 2% fission, 27 tons mass

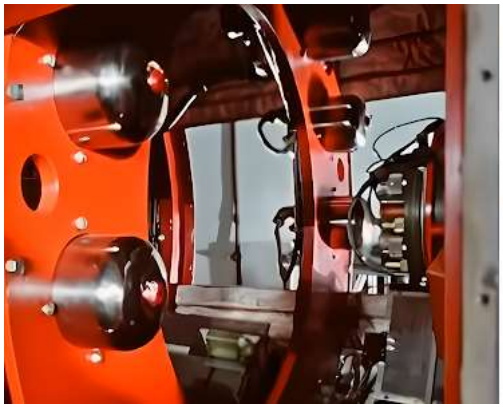




"[Tsar Bomba designer] Y
on the fundamental impr
thermonuclear charges, t
developed the theory of "
- http://www.biblioatom.r
iy_nikolaevich/

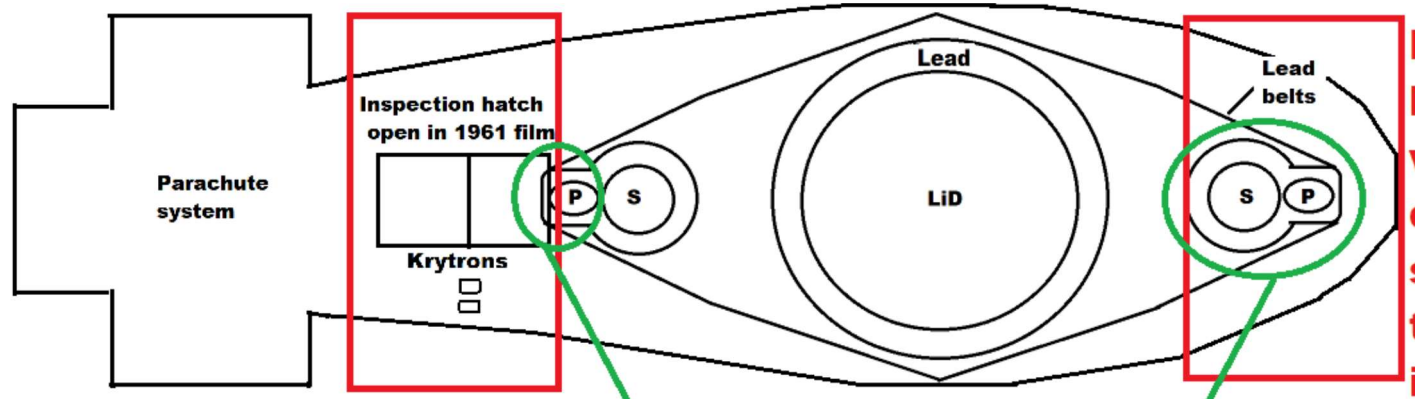
Hence, the use of two pr
higher yields, the use of
stages, with the higher y
facing towards the tertia

Tsar Bomba in Moscow 23 August 2015



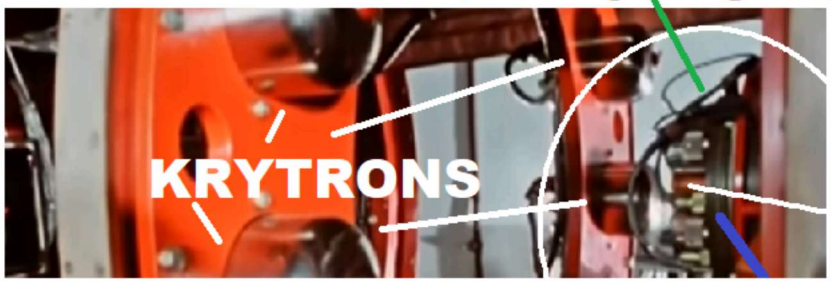


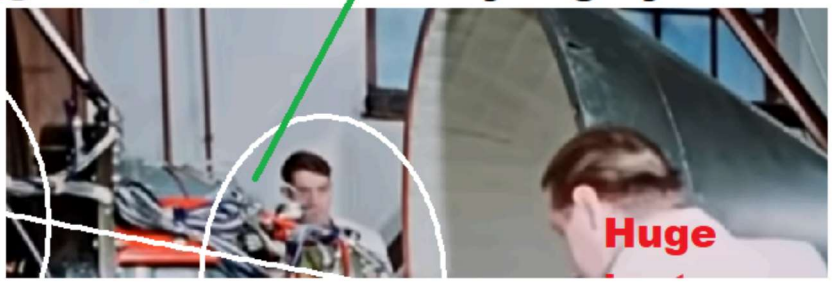




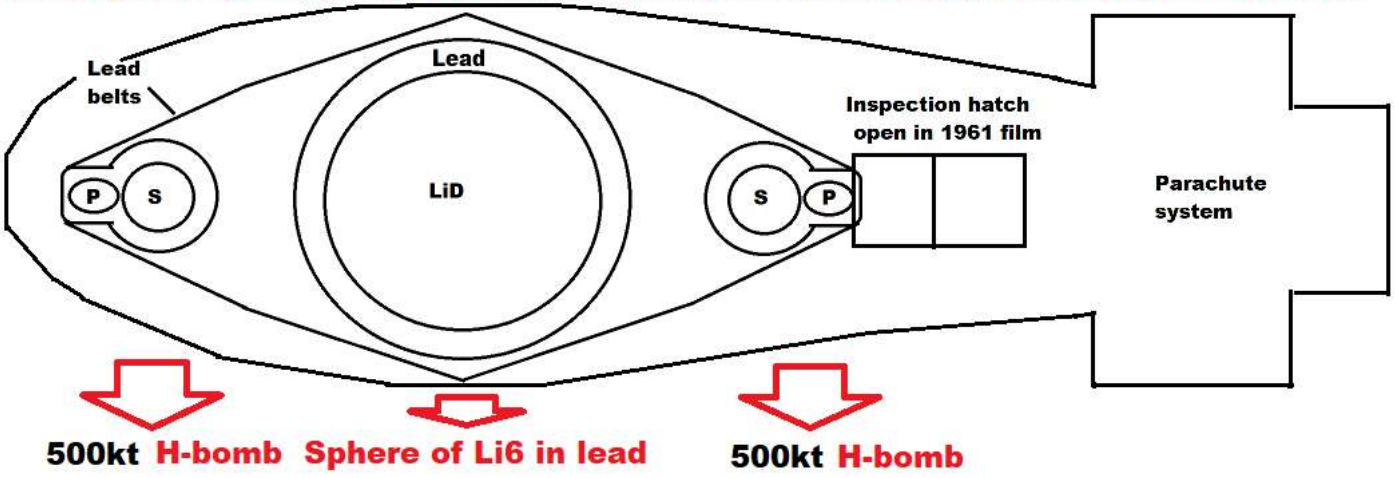
NOTE: the lead belts were added 2 days before shipping to test site (not in film below)

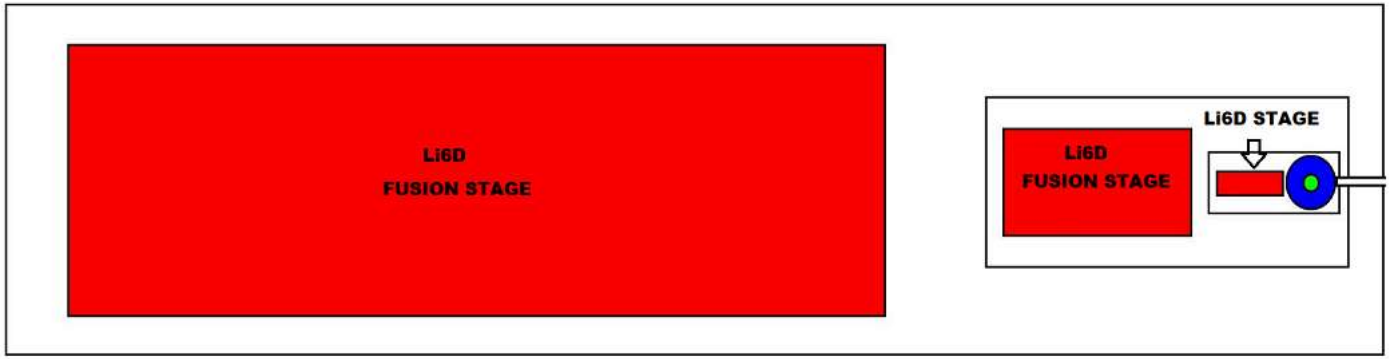
Identical ends of 2 primary stages (green) - the secondary is grey & black





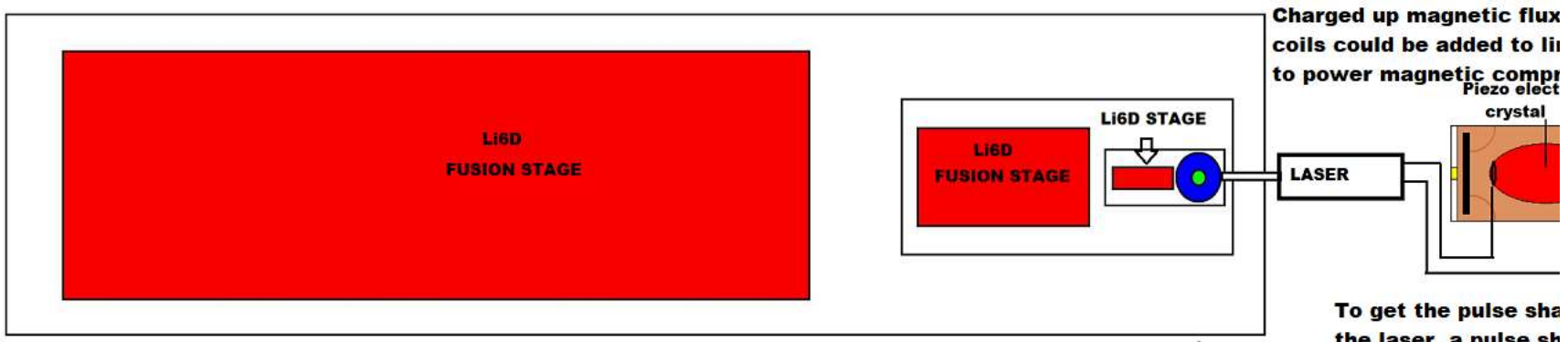
50 megaton Russian con trick in 1961: two 500kt thermonuclear bombs are used!





What <u>would</u> be really impressive: series of bombs within bombs from ONE primary!





100% clean nuclear weapon design, using entirely proof-tested technology
(no speculative B.S.)

CHANGE 1

Field Manual No 101-31-1

NUCLEAR WEAPONS EMPLOYMENT DOCTRINE AND PROCEDURES

Radius of vulnerability (emergency risk criterion: 5% combat ineffectiveness)

Figure 54. Radii of Vulnerability.

CATEGORY	PERSONNEL (LL) IN— (Based on Governing Effect)				
Radii listed are distances at which a 5 percent incidence of effect occurs. HOB used is $60W^{1/3}$ meters.					
Yield (KT)	Open	Open Foxholes	APCs	Tanks	Earth Shelter
	(Distances are in meters)				
0.1	700	600	600	500	300
1	1200	900	900	800	500
10	3200	1300	1300	1250	900
20	4000	1500	1450	1400	1000
100	8000	1900	1800	1800	1400
200	12000	2000	1900	1900	1500
300	14000	2100	1950	1950	1600

Protective factor = ratio of area of effect in the open, to area of effect for shelter

Example: for 300 kt, the protective factor of open foxholes is equal to $(14{,}000)^2/(2{,}100)^2 = 44$.

Open	Open Foxholes	APCs	Tanks	Earth Shelter	Yield (KT)
1	1.36	1.36	1.96	5.44	0.1
1	1.78	1.78	2.25	5.76	1
1	6.06	6.06	6.55	12.6	10
1	7.11	7.61	8.16	16.0	20
1	17.7	19.8	19.8	32.7	100
1	36.0	39.9	39.9	64.0	200
1	44.4	51.5	51.5	76.6	300

Calculation of the injury-averting protective factors by simple open foxholes and earth shelters, as a function of weapon yield. Most countermeasures are relatively ineffective against tactical nuclear wapons (due to the predominating neutron radiation effect at 0.1 kt yield), but are extremely effective against strategic nuclear weapons with yields of 100, 200 and 300 kt (protective factors of 44 to 77).

The definition of protective factor used here is the factor by which casualties numbers are reduced.

SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

6/3/2018

The Honorable Mitch McConnell
Majority Leader
United States Senate
Washington, DC 20510

Dear Senator McConnell,

You recently received a letter from several former government officials regarding the

the authors of the letter, "the United States is serious abo
nuclear deterrent."

Finally, we get to the crux of the authors' argume
feel less restrained about using it in a crisis." Let me be
weapons would be the most difficult decision a Presiden
the ones before it, has said that nuclear weapons would b
circumstances to protect our vital interests and those of
strengthens deterrence by raising the threshold to nuclea

The 2018 NPR has received broad bipartisan sup
forces was begun by the previous Administration and wi
The President's request for the W76-2, a supplemental c
in Russian nuclear doctrine, exercises, and its new nucle

SAC20005721/0000

LA-12063-MS

This document consists of 74 pages

No. 11 of 90 copies, Series A

Nuclear Weapon Data
Sigma 3

SECRET DOCUMENT

The Future of Non-Strategic Nuclear Forces

Are These Capabilities Still Needed? (U)

Joseph S. Howard II
Edward I. Whitted

April 30, 1991

Therefore, we are incredulous of US forces without NSNF to prevent war or to terminate war against hostile nuclear-armed states. The rationale for NSNF must rest upon its capabilities to deter a plausible resurgent Soviet Union, or any of several regional powers with potential nuclear capabilities. As NSNF kept the long peace in Europe because it engendered cautious behavior, so should NSNF be kept as an incalculable risk towards any nuclear state contemplating aggression.

The rationale for NSNF also involves the element of credibility: the NCA should have options other than central strategic forces for an appropriate response.

Under the three categories of options wo
deter aggression or respond to threat
rationale of deterrence or restoration o
prevention and if need be, war terminatio

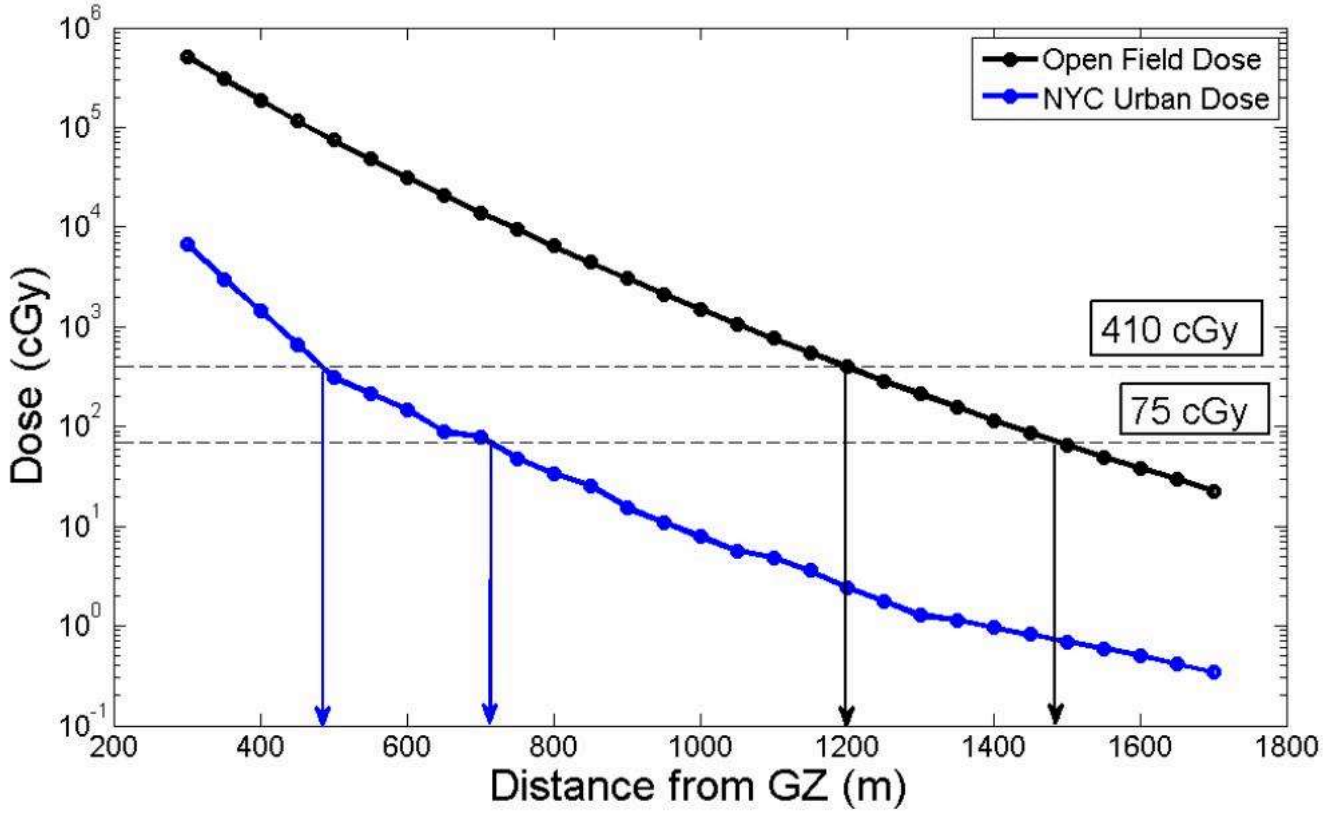
Recommendations

1. Army should keep an organi

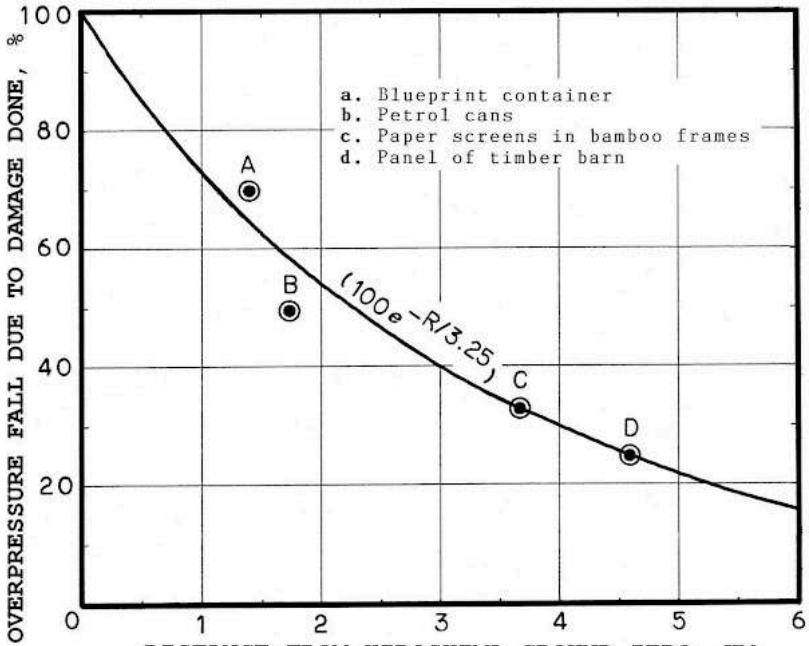
- **Maintain the W79 and 8-in**
- **At the appropriate time (su**

UNCLASSIFIED

Significant Reduction in Total Dose



UNCLASSIFIED



Data from Dr W. G. Penney, et al., 'The Nuclear Explosive Yields at Hiroshima and Nagasaki', Phil. Trans. Roy. Soc., v266 (1970), pp. 357-424.

Basis for the 99.9% clean Ripple II 10 megaton Houstonic deterrent, tested by Nuckolls in 1962

Inertial Confinement Nuclear Fusion: A historical Approch by its Pioneers.
Edited by Guillermo Velarde and Natividad Santamaría
Foxwell & Davies (UK) Ltd © 2007

Contributions to the Genesis and Progress of ICF

John H. Nuckolls

Lawrence Livermore National Laboratory, LLNL



"The implosion enables efficient TN burn by reducing the fusion burn time relative to the inertial confinement time and the radiative cooling time.(1)"

---

(1): For example, a spherical implosion increases the specific burn rate faster than the inertial confinement time decreases. Specific burn rate is proportional to

In 1957, Brown asked me to help evaluate the feasibility
by periodically exploding half-megaton yield H-bombs in a
cavity excavated in a mountain. This large-scale ICF scheme
to develop peaceful uses of nuclear explosives.[1] The commerc

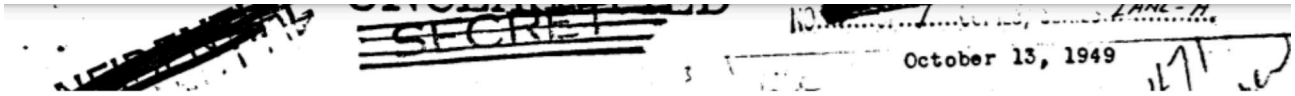
I realized that a few hundred electron volt radiation tempe
ate a very small-scale fusion secondary. Radiation losses into
the fourth power of the radiation temperature. With low radi
can be avoided even though the surface-to-volume ratio incre

Implosion symmetry is enhanced because the radiant ener

walls of the hohlraum is efficiently re-radiated multiple times
er than the implosion velocity of a fusion capsule. Energy rad
idly equalizing temperatures.

Growth rates of fluid instabilities are reduced because kil
hundred eV temperature black body rapidly ablates the unsta

Driving pressures of several hundred megabars and imp



ABOVE: physicist and author Colin Bruce Sibley's 1977 book *Surviving Doomsday*, which was **reviewed by Peter Laurie in *New Scientist*, 13 April 1978, p97, where Laurie points out: "I'm afraid that Mr Sibley has fallen into the popular error of confusing what modern weapons can do, with what they will do."** This followed his **1976 Foreign Affairs Research Institute paper, "The strategic significance of Soviet civil defence preparedness".** Unfortunately, Sibley had been producing children's educational stuff, for example producing a **vinyl record of the 1969 Moon Landings, *Journey to the Moon* (Pickwick International Ltd.),** and in 1976 he



Preface 5
Hiroshima and Nagasaki 6
Biological

authored *The How and Why Wonder Book of Energy and Power Sources* and *The How and Why Wonder Book of Oil* (Transworld Publishers Ltd., 1976 and 1979), see illustration below. He used this same children's book style to write *Surviving Doomsday!* Sibley (1935-2008) later edited *Protect and Survive Monthly.* The reason for this was the attitude of publishers: they knew that hard facts on nuclear weapons didn't sell easily and needed a lot of "gloss" to be economically viable for printing. This same farce occurred with a UK Government booklet, *Protect and Survive*.

6 Protect & Survive Monthly October 1981

(P&S MONTHLY EDITOR = BRUCE SIBLEY)

Target Cities... can they be evacuated?



Graham M. Stathers

During a nuclear attack (or indeed conventional/gas attack), British citizens will be instructed to remain indoors, to 'stay-put' inside crude refuges made of wood, plastic bags filled with soil and slanted doors, or back garden trenches. This extraordinary dictum has led to heated debate; in parliament, in local authority council chambers, at home and in the factories and offices. Most of this argument and counter-argument is reflected in the news-casts and special features of the press and broadcasting media. Undoubtedly, without 'proper shelters' millions may die or be seriously injured if our cities, towns, ports, and airfields fall victim to a massive air attack.

Graham Stathers – cartographer and member of the Royal United Services Institute for Defence Studies and the National Council for Civil Defence, has made a special study of city evacuation logistics (or Crisis Relocation in the US.). His knowledge of maps and population statistics provides us with some new insights into the practi-calities of relocating large numbers of citizens away from potential targets. This article is based on a Monograph Study prepared by the author after several years of research. It is possibly the 'first' unofficial report of its kind in the United Kingdom. And it is obvious that its findings underline the value of city-evacuation in time of international crisis – both from a humane and defensive morale standpoint. Without a national shelter policy, 'stay-putters' would undoubtedly 'vote' for evacuation – regardless of the official attitude. Unsupervised 'panic' evacuation can only lead to the widespread breakdown in public order and the disinheritance of government directives. We could lose the fight for freedom by turning in upon ourselves – victory would go to the attacker . . .

IN ORDER TO CREDIBLY DECLARE WWII AGAINST GERMANY ON SUNDAY 3 SEPTEMBER 1939 DUE TO THE INVASION OF POLAND, BRITAIN EVACUATED KIDS FROM LONDON IN OPERATION PIED PIPER 48 HOURS EARLIER

Information which has reached His Majesty's Government in the United Kingdom and the French Government indicates that German troops have crossed the Polish frontier and that attacks upon Polish towns are proceeding.

If this information is correct it appears to the Government of the United Kingdom and France that by their action the German Government have created conditions (viz. an aggressive act of force against Poland threatening the independence of Poland) which call for the implementation by the Governments of the United Kingdom and France of the undertaking to Poland to come to her assistance.

I am accordingly to inform Your Excellency that unless the German Government can immediately satisfy His Majesty's Government in the United Kingdom that these reports are unfounded, or in the alternative are prepared to give His Majesty's Government satisfactory assurances that the German Government has suspended all aggressive action against Poland and are prepared promptly to withdraw their forces from Polish territory, His Majesty's Government in the United Kingdom will without hesitation fulfil their obligations to Poland.

This is Britain's final ultimatum letter to Germany, written by the fascism appeaser and Jew hater Lord Halifax, delivered at 9 am on 3 September 1939.

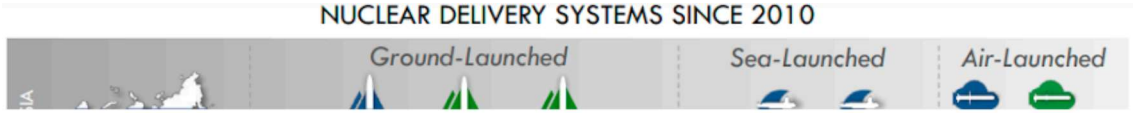


Britain's "free pr criticisms after appeasement of




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HOW
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30p
EUROPE IN 1939
Who were the Nazis?


NUCLEAR DELIVERY SYSTEMS SINCE 2010
Ground-Launched
Sea-Launched
Air-Launched

1962:





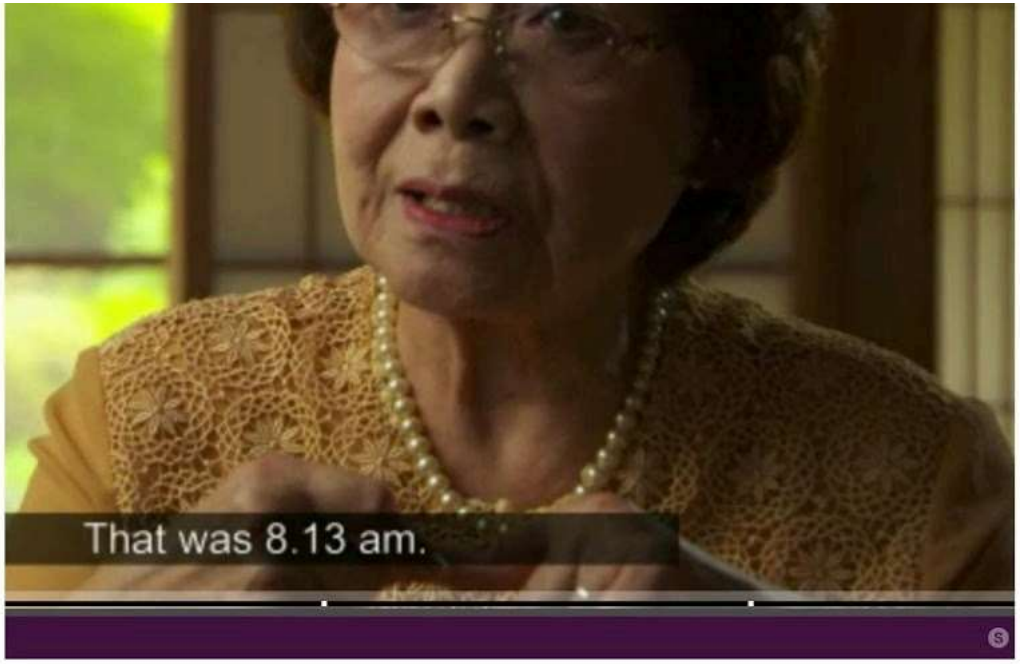


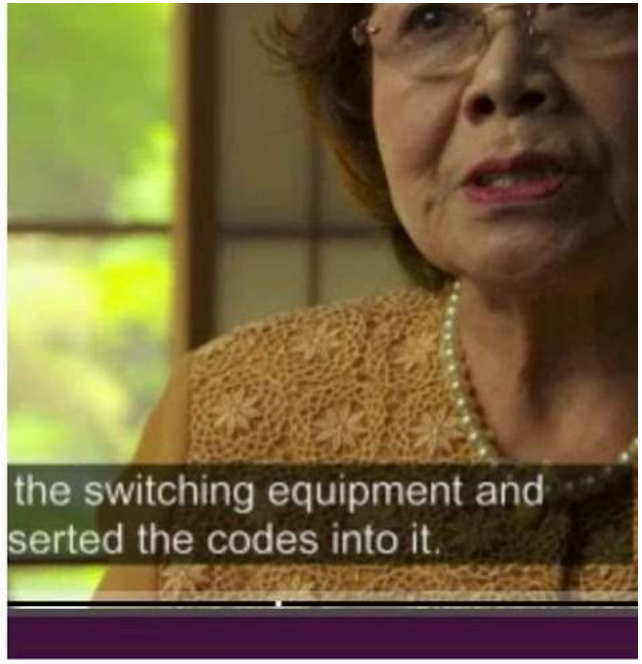

hen finally I heard the buzzer and a
mander's note was passed out to us...


That was 8.13 am.









ABOVE: **Air raid sirens operator Yoshie Oka who survived the nuclear explosion near ground zero in the military bunker just north of Hiroshima Castle on 6 August 1945, identified the B29 bombers (which Tokyo had tracked by the Enola Gay B29 bomber radio call sign), and passed on a report to her seniors in time to get the people of Hiroshima into their air raid shelters, most of which survived intact against a 16 kt nuclear air burst at 600 metres altitude (*by cube-root scaling, similar peak pressures would occur at ground zero for a 16 megaton burst at 6000 metres altitude, since the cube-root of a 1000 fold increase is 10, i.e. 10^3 = 1000, and although the blast duration is also 10 times longer, the blast arrival time also scales up similarly, so it also takes 10 times longer for the blast wave to arrive at ground zero, giving people a far better chance to "duck and cover", and of course in the higher yield burst the scaling of the bomb case thickness and burst altitude will allow far more mean free paths of radiation shielding metal and air which make the initial radiation a minor threat like the thermal flash inside concrete buildings*). But the army officers in Hiroshima were taking breakfast so there was a long delay, and eventually at 8:13, just two minutes before detonation, she finally received the order to start the complex sequence needed to sound the public air raid sirens, putting codes into the air raid sirens to permit operation! She was still trying to get the air raid alarm out when the bomb went off. This is why there was no warning in Hiroshima and most people were not in the plentiful public shelters or concrete buildings**. Shamefully this vital evidence for the failure of civil defense in Hiroshima is completely edited out of the fake news which passes for nuclear weapons information in so-called free democracies.


КОЛЛЕКТИВНЫЕ СРЕДСТВА ЗАЩИТЫ ОТ АТОМНОГО О







ABOVE: Peter Laurie's article on civil defence in the *Sunday Times Magazine,* 10 December 1967, pages 39 et seq., formed the basis of his later book *Beneath the City Streets.* The article states (on page 50) that the popularist (faked) megadeath nuclear war casualty figures were even in 1967 not without precedent since exactly the same media trash exaggerations on casualties and knock-out blow strategy also existed before WWII (contributing to the appeasement that encouraged Hitler): **"a very similar situation existed in 1938. Everyone believed - and these were official estimates - that the Luftwaffe could flatten half London in 3 weeks and kill 3,000,000 people. Few Londoners ran away, and few got bloodthirsty. More to the point, a booklet was issued to every household that winter: *The protection of your home against air raids*. In August 1939 Mass Observation did a survey on what people knew of something simple: the two air raid sirens. Five out of six got them wrong ..."** Laurie's article was, of course, published just 4 months before the British civil defence corps was abolished by hard left wing Prime Minister Harold Wilson in March 1968. But Laurie points out on page 40 of his article that the London underground (ordinary tube trains, not just the specially hardened shelters at 8 stations) will survive directly below a 5 megaton burst at 8,000 feet altitude, which optimises blast effects on buildings, and he points out that the "fireball does not touch the ground: there is no significant fallout." Sure, you can reduce the height of burst to try to damage underground facilities and to cause fallout, but then you no longer optimise the effects on ordinary houses. Laurie in his massive nuclear weapons effects diagram on the same page points out that 75% of British houses are demolished at 5.25 miles from the 5 megaton air burst at 8,000 ft altitude: "but 90% of people under stairs will live" (the WWII Morrison table shelter principle, which is independent of bomb yield because the weight of a collapsing house is independent of bomb yield). His article states that the 1967 British civil defence budget was 10s per person, compared to 17s 6d in West Germany, but adds that "Since 1948, when [nuclear war] civil defence began, we have spent over £1000 million; roughly the capital cost of the deterrent and delivery systems." Laurie also points out in his 1967 article that the very high protection factors of deep shelters make them unfeasible because Russia can produce rockets to negate them for 33% of the cost of the shelters. In order to win an arms race by economic attrition through civil defence, therefore, you need cheaper shelters that cost less than the weapons the enemy is making to try to break through your defences (the same point occurred in WWII, when cheap indoor Morrison table shelters were deployed instead of the economically-crippling gold-plated variety, having been invented and tested by Lord Baker and his assistant Edward Leader-Williams, who - with Frank H. Pavry and George R. Stanbury - in the 1950s tested key British WWII shelters against nuclear weapons at Monte Bello and Maralinga and used the results to develop them into effective but cheap nuclear shelters, published finally in the 1982 UK Government book *Domestic Nuclear Shelters - Technical Guidance*). Finally, Laurie makes the point that devastation in war can transform politics into dictatorial communism: "Russia, for example, by the end of the first world war [the Red revolution was in October 1917 in Russia] had lost, in comparison to 1913: one half to two thirds livestock, one half grain production, 90% of coal, steel, textiles, and transport, 28 million people." The lesson is that if your country is devastated by the effects of war like Russia or Germany in 1918 or Vietnam in 1975, the survivors are likely to have to live in a politically extreme dictatorship, justified by the sheer destruction and the populist need for revenge at any cost.

Peter Laurie, Sunday Times Magazine 10/12/67



ABOVE: photos of paranoid dictatorial Russia from the 25 March 1933 *Illustrated London News* article, when British citizens in Moscow (Allan Monkhouse, John Cushny, W. H. Thornton, W. H. McDonald, Charles Nordwall et al.) were arrested by the OGPU of Stalin's regime on trumped up charges of sabotage (they all worked for the British Metropolitan-Vickers electrical engineering company, and the Russians claimed falsely the company was planning to blow up the Dnieprostroy Dam by pouring sand or acid into the turbines, when in fact the blades were 5 tons and were washed clean by millions of gallons of water daily!), and when ordinary Russians had to endure food rationing in peacetime.

MOSCOW—WHERE BRITISH SUBJECTS WERE ARRESTED AND MAY BE TRIED: WORK AND WAITING



PROPAGANDA IN MOSCOW, WHERE THE MOTIVES OF INDIVIDUAL ENTERPRISE ARE REPLACED BY PRAISE AND COLLECTIVE ENTHUSIASM: A BOARD ON WHICH THE CHARACTERISTICS OF VARIOUS FACTORIES ARE PUBLICLY DISPLAYED—A SNAIL SYMBOLISING SLOW WORKERS; AND SO FORTH.

the right, I could see the walls of the Kremlin, and leaning a little farther I could see the Tsar's golden eagle gleaming at the very highest point of the Kremlin buildings surrounded by the red flags of Communism. By virtue of its own beauty, Moscow was a magnificent sight in the dawnlight, with the sun fresh upon it. But the mind added fresh interest, by the consciousness of all the mystery and all the violent passion that lay concealed beneath those golden domes and especially within that Kremlin, where the red flags and the golden eagle stood side by side, the eagle surrounded by red flags, as by an army that had captured and caged it." We may turn from Mr. O'Flaherty's romantic vision to see what a matter-of-fact American observer—and one with a confessed affection for the Russian people—found in Moscow. Mr. Will Durant gave his impressions of Russia in a series of exceedingly lucid and well-informed articles in the "Saturday Evening Post." He arrived in Moscow after an uncomfortable journey from Omsk. "Some of the avenues were smoothly paved," he writes; "in 1912 they were content with cobblestones. Private automobiles were few, but buses were many, and the trams were frequent and full. Shacks and palaces passed by us in chaotic alternation; the bizarre grandeur of old churches mingled with the crude boxes and parallel lines of modernistic monstrosities; the great stores that had given colour to this thoroughfare twenty years before were closed, and white sheets draped their vast windows dismally. Dingy tenements opened their sleepy portals and sent forth streams of workers to shops and factories. These people seemed better dressed than those in Omsk, though they had caps for hats and sneakers for shoes, and their blouses, though unwashed, were a picturesque and sensible costume. The manners seemed rough, but not unkind. . . . We passed the Red Square—

[Continued on right.







ABOVE: the relationship of civil defence by a dictatorship to its aggressive policy (such as Germany's compulsory cellar bunker shelters in the 30s and Russia's in the cold war) was documented in the 14 October 1933 *Illustrated London New*s showing civil defence anti-disarmament propaganda in Hitlers Nazi Germany, stating: "In view of the world-wide interest in the question of disarmament, with which is involved that of the re-armament claimed by Germany, it is significant that the Nazi regime appeas to be conducting all its activities, and training of the youth of the nation, on more or less military lines ... We illustrate in the photographs on these pages one phase of the all-pervading propaganda calculated to create in the German people the fear that one day or another they may be attached ... children are taught to take refuge promptly in special underground shelters and to extinguish, by sand, fires of the kind that might be caused by bombs. The spirit in which these lectures are given may be gathered from the following extract ... : " 'Germany is not allowed to have fighting aeroplanes on land or sea.' Thus runs Clause 198 of the shameful Treaty of Versailles ... Germany has been completely disarmed and has no defence against an enemy air attack." Having first set up effective German civil defence in 1933, the next step of the Nazis was to re-arm in preparation to setting the clock back to 1914. Stalin did the same in Russia. Putin follows suite. As Herman Kahn forecast over 60 years ago, we are now paying the price for neglecting civil defence and also for refusing to put freedom loving states ahead in the arms race. The options available to such weak loons are disastrous.


394—THE ILLUSTRATED LONDON NEWS—Oct. 14, 1933
GERMANY PRACTISING "PASSIVE AIR DEFENCE":
TEACHING CIVILIANS HOW TO ACT UNDER AERIAL ATTACK.
Oct.
PROPAGANDA
INSTRUCTION IN



THE DAILY MIRROR, Saturday, February 29, 1936.

Broadcasting - Page 20

Daily Mirror

THE DAILY PICTURE NEWSPAPER WITH THE LARGEST NET SALE

No. 10,062 Registered at the G.P.O. as a Newspaper. SATURDAY, FEBRUARY 29, 1936 One Penny

EUSTACE - - - - Page 8
QUIET CORNER - - - 15
DOCTOR'S DIARY - - 17
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Amusements: Page 22

HITLER'S "LET'S BE FRIENDS" PLEA TO WORLD

An Exclusive Interview with "Daily Mirror"



"I APPEAL TO REASON"

Passionately ... fervently ... in the plain words of a Man of the People, Adolf Hitler, Leader and Master of Germany, in an exclusive interview with the "Daily Mirror" yesterday, pleaded with the world:—

"LET'S BE FRIENDS"

"I appeal to reason in international affairs," he said. "I want to show that the idea of eternal enmity is wrong. We are not hereditary enemies."

The "Daily Mirror" challenged his views with those in his book, "My Struggle." "My justification," said the Leader, "I shall write in the great book of history."

Man of Destiny Speaks

By BERTRAND DE JOUVENEL

IN the room where the destiny of Germany is planned her Man of Destiny sat to receive me.

Simply dressed, sitting at his desk, he unburdened to me his heart . . . his hopes . . his fears.

He eyed me keenly for a moment.

Then . . . slowly, this man who sees into the mind, said:

what is the most advantageous for my country?

"AND THE BEST THING FOR MY COUNTRY IS PEACE.

"People imagine me as someone quite different from what I am.

"They know quite well that I started at the bottom, and have become the master of Germany, which is rather an astonishing achievement, and there must be some extraordinary reasons for it.

"Mysticisms,

took on their fighting light; his fists clenched.

"Political problems appeared complicated. The German people did not understand them.

"They preferred, in such conditions, to leave to professional politicians the task of freeing them from these complications.

"I simplified these problems. I reduced them to simple terms.

"The Germans understood—and they followed me!

"And so the class-war—that notorious war of the classes—was shown to be an absurdity.

"I demonstrated its absurdity and the

Rest of the News

Countess Haugwitz-Reventlow, formerly Miss Barbara Hutton, the Woolworth heiress, who gave birth to a son on Monday, was last night stated to be gravely ill after an operation.

See back page

"Yes, I know what you are thinking.

"You say to yourself, 'Hitler makes peaceful declarations to us, but is it in good faith? Is he sincere?'

"Instead of giving yourselves up to psychological guesses, would you not do better to reason, to make use of logic?

"This logic, in which the French profess implicit belief—does it not lead you to think that it would be obviously to the advantage of France and Germany to maintain friendly relations?

"Would it not be ruinous for them to meet in conflict on new fields of battle?

"Is it not logical that I should wish for

Chance, or—?"

"Some say that it is due to violence that I have become chief of the German nation. As a matter of fact, there was only a handful of us to begin with. We would have had our work cut out to capture by violence a nation of 75 million.

"Others say that my success is due to the mysticisms that I have created. Still others declare that it is due to chance.

"I must tell you what has brought me to where I am——"

Hitler's face took on a change. His eyes

people understood me!

"I made an appeal to their reason

"NOW I AM MAKING AN APPEAL TO REASON IN INTERNATIONAL AFFAIRS.

"I WANT TO SHOW MY PEOPLE-THAT THE IDEA OF EVERLASTING ENMITY IS ABSURD; AND THAT WE ARE IN NO WAY HEREDITARY ENEMIES. THE GERMAN PEOPLE UNDERSTAND THAT, TOO.

"The German people have followed me in a reconciliation that has been infinitely more difficult—the reconciliation of Germany and Poland.

"By some the agreement between Germany

(Continued on back page)

Poor Family's Maidan Home .... Page 2
Memorial to King George ..... " 2
Good News ..... " 2
£2,000,000 Air Boat Fleet ..... " 2
Football Clubs Defeat "Bush Bush" " 2
Things to Come ..... " 4
Painted King George Lying-in-State " 5
Postman Leaves £15,000 ..... " 5
Building New Face on a Man ..... " 5
Life or Death in a "Twist" ..... " 6
Four Heroines of Commons ..... " 13
Sir Austen and Rearmament ..... " 24

GET A DAILY EXPRESS
MODEL GLIDER
FOR THE CHILDREN
Designed like a real man-carrying glider
3 ft. 2 ins. Wing Span.
Easy to make and to fly!
3/6 at the Daily Express Offices, Fleet-street, London, E.C.4, or 4/- carriage paid.

Daily Express
WORLD'S LARGEST DAILY SALE
Saturday, October 1, 1938
One Penny

BUY BRITISH
ballito
STOCKINGS

Multitude cheer the Premier home and hear him say:

"YOU MAY SLEEP QUIETLY—



ABOVE: Western nuclear disarmament from 31,255 US warheads in 1966 to 3,750 in 2020, is a repeat of the weapons effects exaggerations for disarmament propaganda, a lying disaster which allowed a defeated Germany in 1918 to rearm and start WWII, as these quotations from an earlier blog post here prove, which also quotes Kissinger (before he was corrupted by political expediency) explaining how tactical nuclear weapons can safely be used to deter invasions: '**The Hungarian revolution of October and November 1956 demonstrated the difficulty faced even by a vastly superior army in attempting to dominate hostile territory. The [Soviet Union] Red Army finally had to concentrate twenty-two divisions in order to crush a practically unarmed population. ... The high casualty estimates for nuclear war are based on the assumption that the most suitable targets are ... cities ... The elimination of area targets will place an upper limit on the size of weapons it will be profitable to use. Since fall-out becomes a serious problem [i.e. fallout contaminated areas which are so large that thousands of people would need to evacuate or shelter indoors for up to two weeks] only in the range of explosive power of 500 kilotons and above, it could be proposed that no weapon larger than 500 kilotons will be employed unless the enemy uses it first. Concurrently, the United States could take advantage of a new development which significantly reduces fall-out by eliminating the last stage of the fission-fusion-fission process.' - Dr Henry Kissinger, Nuclear Weapons and Foreign Policy, Harper, New York, 1957, pp. 180-3, 228-9**.

ACKNOWLEDGEMENTS: **(1). Thank you to http://www.militarystory.org/nuclear-detonations-in-urban-and-suburban-areas/ for re-blogging a typical post from this glasstone.blogspot.com blog, kicking out the lies from under secrecy obsessed loons who want disarmament to start WWIII.**

(2). Thank you to **https://www.nextbigfuture.com/2016/02/are-nuclear-weapons-100-times-less.html for reblogging: "Are [strategic, not tactical] Nuclear Weapons 100 times Less Effective Than Supposed? Nigel B. Cook's Glasstone.Blogspot Blog has beautiful coverage of many nuclear topics here. http://glasstone.blogspot.co.uk/ Cook is a master researcher who digs up incredible piles of research on all topics nuclear and the following is digest of various writings of his gathered for easy access centered on the remarkable thesis that the effects of nuclear weapons, while literally awesome, have been exaggerated or misunderstood to an even greater extent, with perhaps very considerable military consequences."**

FIGURE 2

Size of the U.S. Nuclear Weapons Stockpile, 1945–2020

(OR, WHY PUTIN FEELS CONFIDENT INVADING UKRAINE JUST AS HITLER INVADED HIS NEIGHBOURS WHILE PACIFISTS DISARMED THE UK UNTIL 1935 THEN REARMED SLOWER THAN THE NAZIS, TO AVOID PROVOKING A SECOND WORLD WAR BY WINNING AN ARMS RACE.)



"There is no security in arman
we shall be no party to piling t

– Labour Party Leader of the B
House of Commons Oppositior
Clement Attlee, 1935 (two yea
Hitler took power and began r
Germany; quotation from Gilbe
Gott, The Appeasers, 1967).

TIPS: There is compendium debunking commonplace anti-nuclear CND disarmament propaganda, exaggerations and fake news on nuclear weapons effects and deterrent capabilities **linked here**. Also, each post on this blog can be viewed in either a simple format, e.g. for this current post, **https://glasstone.blogspot.com/2022/02/analogy-of-1938-munich-crisis-and.html** is the simple (faster loading) format, or you can view it (slower loading) in a fancy format by adding: **?m=1** to the end of the URL, e.g. **https://glasstone.blogspot.com/2022/02/analogy-of-1938-munich-crisis-and.html?m=1**

"The Budapest **Memorandum on Security Assurances ... at the OSCE conference in Budapest, Hungary on 5 December 1994 ... signed by three nuclear powers: the Russian Federation, the United Kingdom and the United States ... prohibited the Russian Federation, the United Kingdom and the United States from threatening or using military force or economic coercion against Ukraine, Belarus, and Kazakhstan. As a result of other agreements and the memorandum, between 1993 and 1996, Belarus, Kazakhstan and Ukraine gave up their nuclear weapons**." - Wiki.

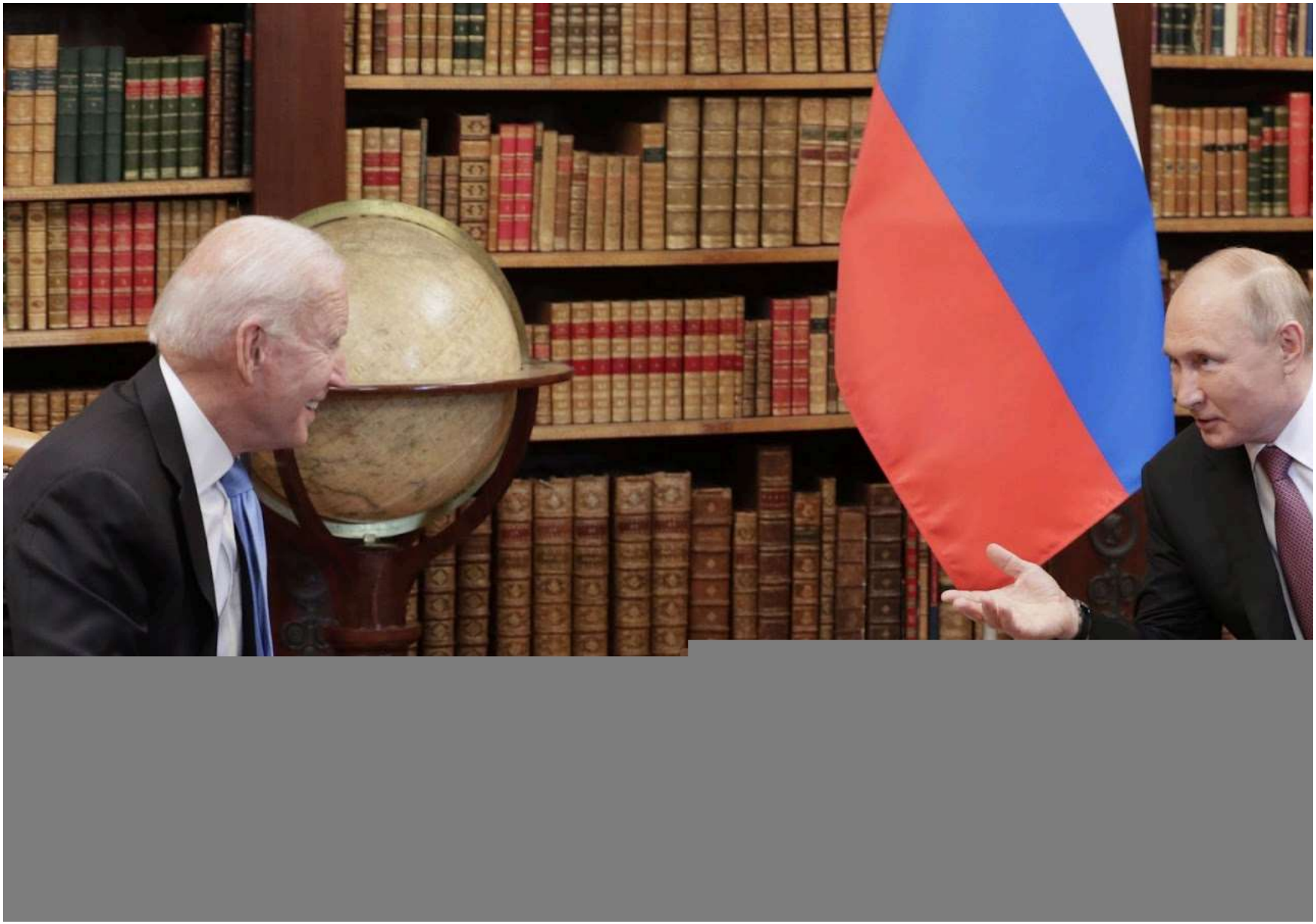
NATO needs to come to its senses and rearm to deter WWIII instead of stupidly leaving Putin with more nuclear weapons than anyone else, to intimidate like Hitler (see 1930s newspapers below, which spell out the problem plainly). The problem is, the media is dominated by nuclear liars just as it was dominated by gas war liars in the 1930s, who encouraged war while pretending to be doing the opposite. Fighting a conventional war using Ukraine as proxy, while having an inferior nuclear stockpile, is hardly credible nuclear deterrence (please click here for our brief declassified data debunking Glasstone's lying data on nuclear weapons effects) . Also see the compendium **linked here for more detail on the actual declassified effects found in Hiroshima, contrary to Glasstone's very deceptive treatment**. Please also **click here for our declassified 4069-pages compendium of nuclear weapons deterrence data,** debunking the Ukraine's "security through nuclear disarmament" myth YEARS AGO!

Biden confuses Iran and Ukraine in State of the Union gaffe

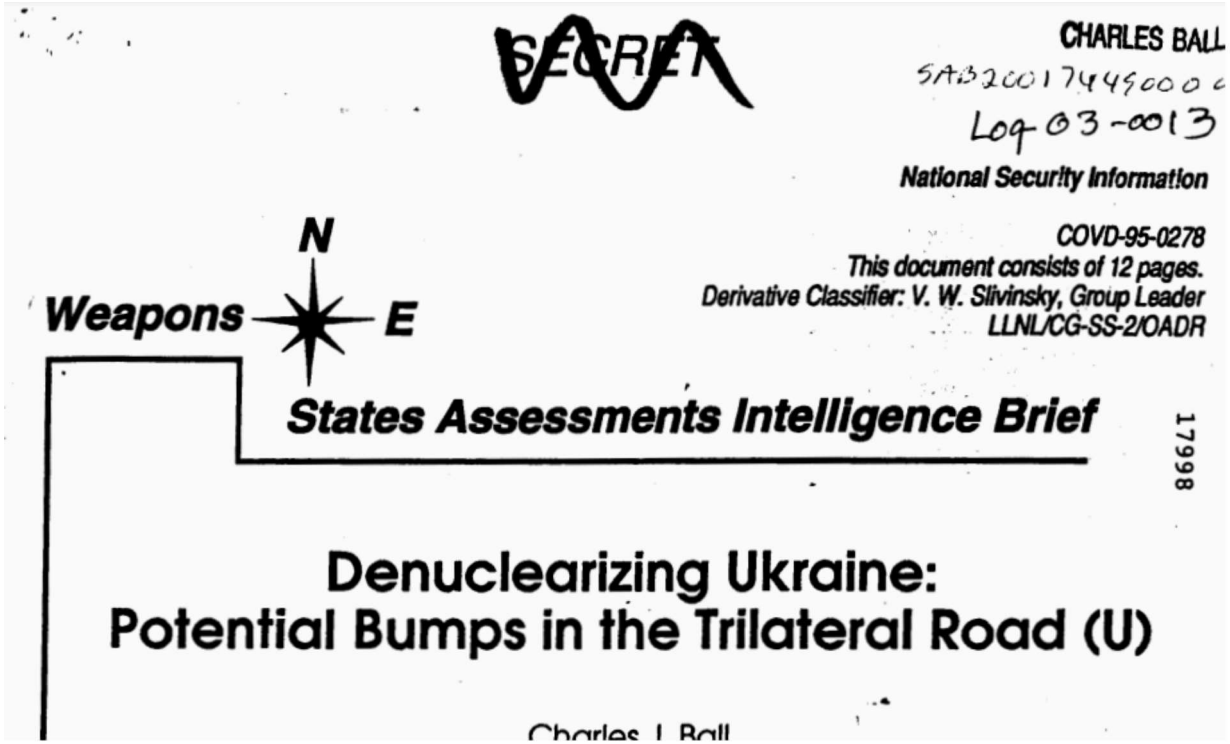


'Sharp as a tack': Joe Biden confuses Ukraine and Afghanis...






xtra US troops in Eastern Europe
ESTONIA
1,150
LATVIA
Nato members
Nato troops
US troops
Russia and the United States account for 92 percent of the world's nuclear arsenal.
27M MALKA
BELARUS
Minsk
Moscow
Source: Daily



SECRET

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National Security Information

COVD-95-0278
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Derivative Classifier: V. W. Slivinsky, Group Leader
LLNL/CG-SS-2/OADR

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Weapons E
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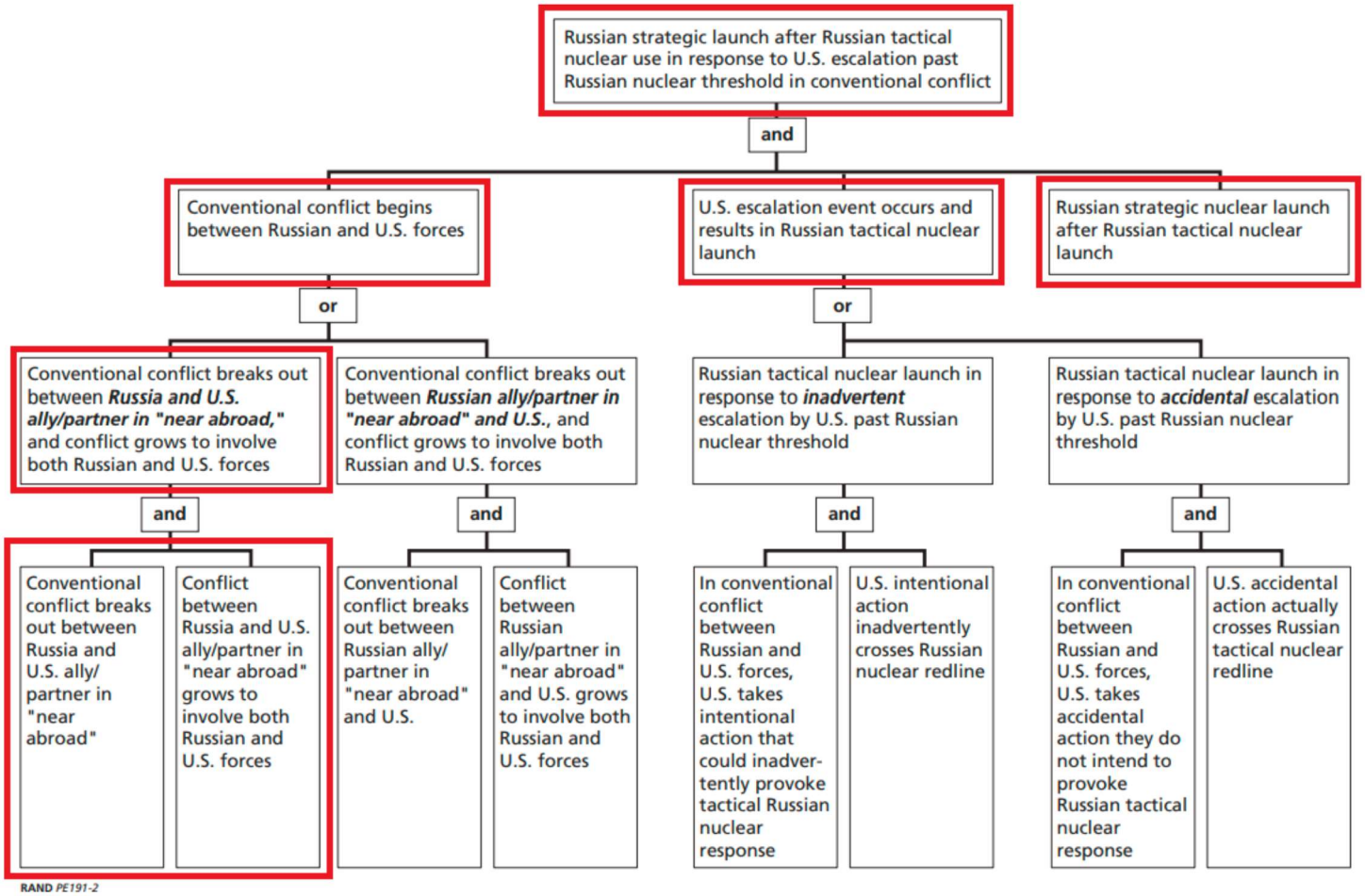
Denuclearizing Ukraine:
Potential Bumps in the Trilateral Road (U)

Charles J. Ball

Ukraine's 1990s nuclear disarmament risks exposed only in SECRET reports kept locked away from the Western


REDACTED COPY
UNCLASSIFIED
A-5:91-79(S) (CRD/DNWDI)
December 16, 1991
SECRE
UNCLASSIFIED
NSNF = tactical nuclear weapons

Figure 2. Fault Tree for Russian Strategic Launch After U.S. Escalation Past Russian Nuclear Threshold



"During the Cold War, it was often assumed that the use of nonstrategic nuclear weapons would eventually escalate to East-West strategic nuclear exchanges (Quinlivan and Oliker, 2011, p. 72) ... there seems to be a

ABOVE: "**During the Cold War, it was often assumed that the use of nonstrategic nuclear weapons would eventually escalate to East-West strategic nuclear exchanges (Quinlivan and Oliker, 2011, p. 72). ... there seems to be a recognition within Russia of brinkmanship hazards—namely, that Russian nuclear use could get out of hand and result in further escalation (Quinlivan and Oliker, 2011, p. 72)." - Anthony Barrett, 2016 RAND Corp report RAND-PE-191-TSF, *False Alarms, True Dangers? - Current and Future Risks of Inadvertent U.S.-Russian Nuclear War***, page 7.





ABOVE: W54 Davy Crockett tactical nuclear deterrent of approximately 0.02kt yield and 20ft burst altitude, tested in front of Robert Kennedy, Attorney General, in the final Nevada atmospheric nuclear weapon trials to deter invasions: 2,100 were deployed in the 1960s, successfully deterring a Russian invasion. But ALL tactical nuclear weapons were removed in the 90s after false propaganda from appeasers, leaving a dangerous gap in the spectrum of deterrence. (Photo credits: US National Archives photos above taken on 14 July 1962 show tactical 0.02kt+/-10% yield W54 Davy Cockett nuclear weapon projective M388 on M29 launcher at Nevada Test Range, with two soldiers from the Heavy Weapons Platoon, 1st Battalion, 12th Infantry, 4th Infantry Division, US Army.) The Ukraine invasion is an invasion deliberately caused by the Budapest Memorandum on Security Assurances signed on 5 Dec 1994 to remove the nuclear deterrent from Ukraine to prevent war. Like the disarmament of the UK up to 1935 to guarantee "peace in our time", loads of excuses are used to try to justify weakness and enemy aggression, by left wing warmongers who profit by causing war with its refugee crises with financial and humanitarian disasters. Until the so-called peacemakers disarmed Ukraine of its 176 intercontinental ballistic missile (ICBM) launchers with some 1,240 warheads, leaving Ukraine to make improvised Molotov cocktail petrol bombs (polystyrene dissolved in petrol in a bottle) to try to protect its kids from Russia, Russia was deterred from invading Ukraine by reliable nuclear deterrence. **Ukraine had experts and still does have expertise on servicing and using those nuclear weapons - in evidence, before they were invaded, we bought the confidential Russian nuclear weapons employment manuals (LINKED HERE) from the Ukrainian military on ebay. In fact, Russian nuclear weapons are more straightforward and easier to service and employ than American nuclear weapons, so the lie that the Ukrainian nuclear weapons in 1994 couldn't be serviced by Ukraine - which has Europe's largest nuclear reactor and all the nuclear expertise that goes with it - is just that, a lie by anti-nuclear folk.**

"**In the event that deterrence fails, this Perspective also finds a number of factors that could undermine NATO's ability to respond to a crisis. As repeated RAND wargames have shown, Russia could quickly overwhelm any or all of its Baltic neighbors (Estonia, Latvia, and Lithuania), which are not sufficiently supported by NATO allies to stop a concerted thrust into their territory ... In dozens of RAND-run wargames involving a variety of players, strategies, and variations in initial starting conditions, the longest it took Russian forces to reach the outskirts of the capitals of Estonia and Latvia in a short-notice invasion was 60 hours (Ref. 19)." - Clint Reach, Edward Geist, Abby Doll, and Joe Cheravitch, *Competing with Russia Militarily - Implications of Conventional and Nuclear Conflicts,* RAND Corp document PE-330-A, 2021, pages 2 and 9**."

"It would be **disastrous to have a conspicuous gap in the spectrum of deterrents and capabilities." - quotation from RAND Corporation's Herman Kahn, *On Thermonuclear War*, Princeton University Press, 1960, page 286. (Any gap in the "spectrum of deterrents and capabilities" is exploited by enemies, just as any gaps in a prison wall are not ignored but seized upon by escaping prisoners. A gap in the spectrum was created by the 1990s removal of tactical nuclear deterrents that deterred/stopped invasions, on the basis of populist lying anti-nuclear propaganda that the world would be safer as a result. It was only safer for warmongers, invaders and dictators. The world was in fact a "nuclear unarmed" place until 1945, but that didn't prevent nuclear weapons being made and used against Hiroshima and Nagasaki in 1945. So much for peace or even an aversion of nuclear war escalation risks in war, through nuclear disarmament. Also note that those nuclear weapons were made by a democracy in secret, and during a world war. How much easier was it for nations with smaller economies to produce nuclear weapons in secret during peacetime? It was certainly cheaper, since none could have afforded the billions spent by America's Manhattan project during WWII. So much for nuclear disarmament preventing war or even preventing nuclear warfare during a war that began in a world free from nuclear weapons. Again, when WWII began, there were no nuclear weapons. The nuclear weapons were made and used during the**

war itself, being made in secret by a democracy, and under a Democratic Party president. If this doesn't fit in with the nuclear disarmament hype you have been told, then you know they are liars.)

As the illustrations below from Dr Shelton's *Reflections of Nuclear Weaponeer,* a shelter well within the fireball radius of the first multimegaton hydrogen bomb survived 330 psi peak overpressure, and a 1.4 megaton W49 thermonuclear warhead detonated at 400 km altitude above Johnston Island as the Starfish prime test on 9 July 1962 produced EMP effects 800 miles away in Hawaii (colour photos on the front page of the 9 July 1962 Honolulu Star Bulletin, mentioning that streetlights were turned off and air raid sirens were activated - due to EMP). *The Russians later, on 22 October 1962, performed such an EMP demonstration with a 300 kt warhead detonated at 290 km altude, so they could use this type of "nuclear weapon demonstration" threat as an alternative to usual disarmament propaganda about nuclear weapons automatically being used to kill people by Hiroshima-type low altitude air or surface bursts:*


W80

ABOVE: in the Cold War, Russia was deterred from invasions using a variety of tactical nuclear weapons including **2,100 W54 Davy Crockett tactical nuclear weapons**, and later - after the Russian invasion of Afghanistan began - 550 deployed W79 **thermonuclear 1.1 kt W79 neutron bombs (to achieve a significant fusion yield with the very brief compressions available with a sub-kiloton fission yield, a second stage capsule of tritium and deuterium gas had to be employed, instead of the solid lithium-6 deuteride secondary stages that require neutron fission of the lithium-6 to produce tritium, prior to fusion; the x-ray compression at such a low yield was too brief to allow the fission stage neutrons to arrive at the secondary stage in time to fission enough lithium-6 prior to the x-ray compression pulse).** The fission primary stage of the W79 shell uses **small-diameter linear implosion system invented for a variety of purposes, both nuclear and non-nuclear, by US Government explosives expert Bernard Drimmer, and has now been declassified and published (after decades of being kept secret) as US Patent US5450794A/en, presented without the central fissile core for compression, as merely a method to increase to a maximum the efficiency of underwater explosives (just sticking a detonator into a lump of explosive leads to incomplete burning since some of the explosive ends up being blasted outwards into cold water before detonating; using the implosion system with the burning wave going inwards therefore maximises efficiency for non-nuclar torpedoes).** The W79 deterred both massed troop invasions and also tank and APC invasions, since 14.1 MeV D+T fusion reaction neutrons penetrate armour very efficiently (even without the removable fusion capsules, the neutrons and gamma rays from 0.8 kt pure fission yield of the W79 was still a highly effective deterrent against Russian tanks; the fusion capsule reportedly added 0.3 kt of fusion yield, 80% of this or over 0.2 kt in the form of 14.1 MeV neutrons). Click for a **Secret (now declassified) Los Alamos report detailing why we need the W79 enhanced neutron tactical nuclear weapons to deter Russian expansionism (report LA-12063-MS "The Future of Non-Strategic Nuclear Forces: Are These Capabilities Still Needed," dated 1991, LINKED HERE),** and **linked here** with a previous **slightly different declassified version linked here (which gives the names of the LA-12063-MS report authors, unlike the OpenNet version**), ignored by left wing (discussed on **previous blog post linked here - a brief extract from this 74-pages long report, containing detailed evidence that *tactical* nuclear weapons kept the peace in the Cold War much to the fury of Russia, is shown below; notice that tactical nuclear weapons are asymmetric in that they are more useful to deter invasions than to cause invasions, hence they are a stabilizing influence in crisis instability despite left wing propaganda to the contrary**):

LA-12063-MS

This document consists of 74 pages

~~Nuclear Weapon Data~~
~~Sigma 3~~

~~SECRET~~

D0001561B

The Future of Non-Strategic Nuclear Forces

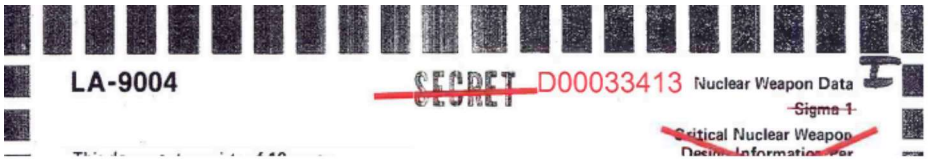
Are These Capabilities Still Needed? (U)

DELETED OSD b(6)

REDACTED COPY

April 30, 1991

~~FORMERLY RESTRICTED DATA~~
Unauthorized disclosure subject to administrative and criminal sanctions

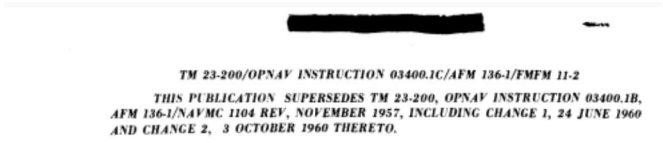


THE ULTRA-LOW YIELD ANTITANK WEAPON
The Teeny Tiny Tacnuke (U)

by

Johndale C. Solem

Another declassified **Los Alamos neutron bomb report, Johndale C. Solem's 1982 Secret Los Alamos report LA-9004 (LINKED HERE) on the neutron bomb, The ultra-low yield antitank weapon, the teeny tiny tacnuke, complete with declassified markings showing it was "Nuclear Weapon Data Sigma 1: Critical Nuclear Weapon Design Information", in a limited edition of just 79**



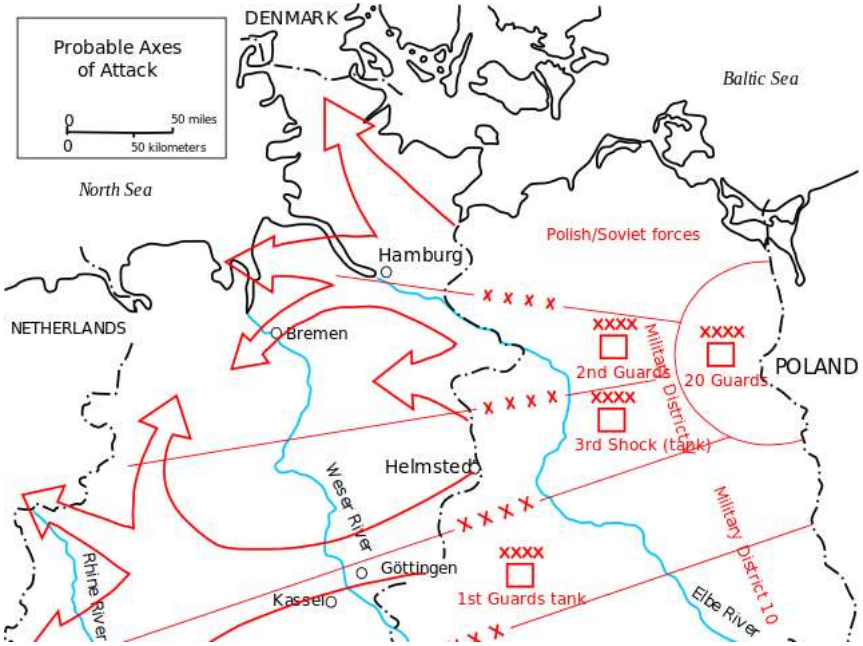
TM 23-200/OPNAV INSTRUCTION 03400.1C/AFM 136-1/FMFM 11-2

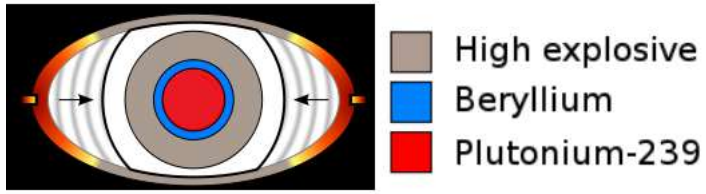
THIS PUBLICATION SUPERSEDES TM 23-200, OPNAV INSTRUCTION 03400.1B, AFM 136-1/NAVMC 1104 REV, NOVEMBER 1957, INCLUDING CHANGE 1, 24 JUNE 1960 AND CHANGE 2, 3 OCTOBER 1960 THERETO.

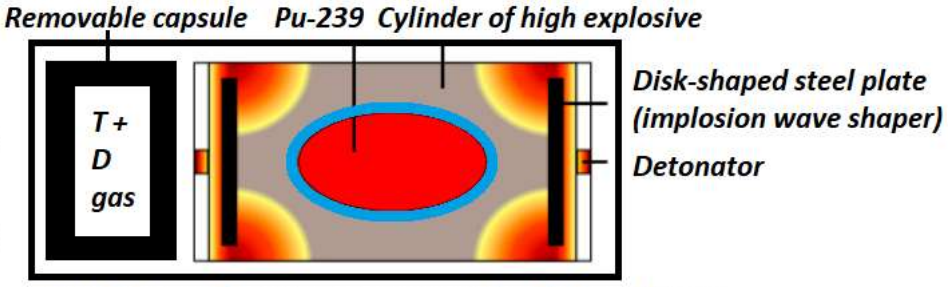
Table 7-5 Dose Transmission Factors (Interior Dose/Exter

	Gamma rays	
Geometry	Initial	Residual

printed copies, secret (now declassified with deletions of design information) describes the kiloton W79 neutron warhead (44" long [*note that there is a typing error, incorrectly stating it is 44 cm long in LA-9004*], 200 lbs including firing system, capable of being fired 32 km from a 8" howitzer), and explains correctly that the whole point of such weapons is to deter the concentrated blitzkrieg assaults that started WWI in 1914 (the invasion of Belgium by concentrated force) and WWII in 1939 (the invasion of Poland by concentrated force). The principle of concentration of force can be deterred with nuclear weapons, thus preventing the invasions that trigger wars. By forcing enemies to disperse their forces, any attacks that are made can be dealt with using conventional weapons like handheld anti-tank rockets (no use against concentrated firepower, but useful against dispersed forces), preventing invasion and WWIII (the map below is from the 1st Cold War, but demonstrates the kind of threat possible after completion of invasions of Ukraine and its neighbour/NATO supporter Poland):







Comparison of 1961 W54 with 1981 W79 warhead

"Denying an aggressor force the use of massed formations of armor is the single most important aspect of the W79."

LA-9004 then goes on to suggest a lower yield version of the W79 for use against individual tanks, like the Kennedy era portable 0.02 kt W54 that could be fired by individual soldiers, air burst at 15 metres altitude to eliminate local fallout, blast and heat collateral damage. Page 5:

"Tank crews within 25 m of the weapon would be immediately incapacitated. Civilian populations 300 m from the point of detonation would be completely safe. ... Beyond 300 m, exposed personnel might be temporarily blinded from looking directly at the detonation, but would suffer no burns to exposed skin. ... The effect of blast on civilian structures near the battlefield would be trivial. Three hundred metres from the point of detonation windows would rattle but not break. ... the fallout would be expected to be confined to the battlefield itself. ... The principal advantage of such a device in reducing collateral damage from local fallout is that it simply does not produce much in the way of fission fragments or activated weapon debris."

LA-9004 then points out, on pages 7-8, that such a **defensive low yield weapon with no significant risk of collateral damage is of no significant use to terrorists, contrasted to easy-to-procure alternatives**.

~~SECRET/RD~~

Los Alamos report LA-4350-MS

~~SECRET~~

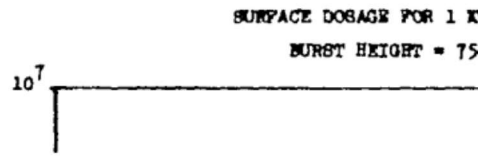
https://www.osti.gov/opennet/detail?osti-id=1042

LA-4350-MS

RIGHT: a Secret neutron bomb report shows that 1 kt of T-

PROCEEDINGS OF THE

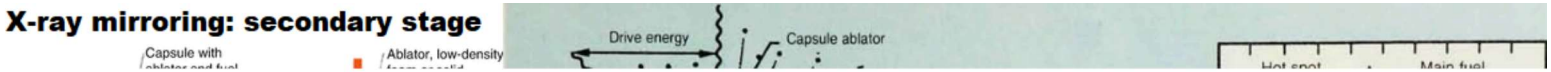
TACTICAL NUCLEAR WEAPONS SYMPOSIUM

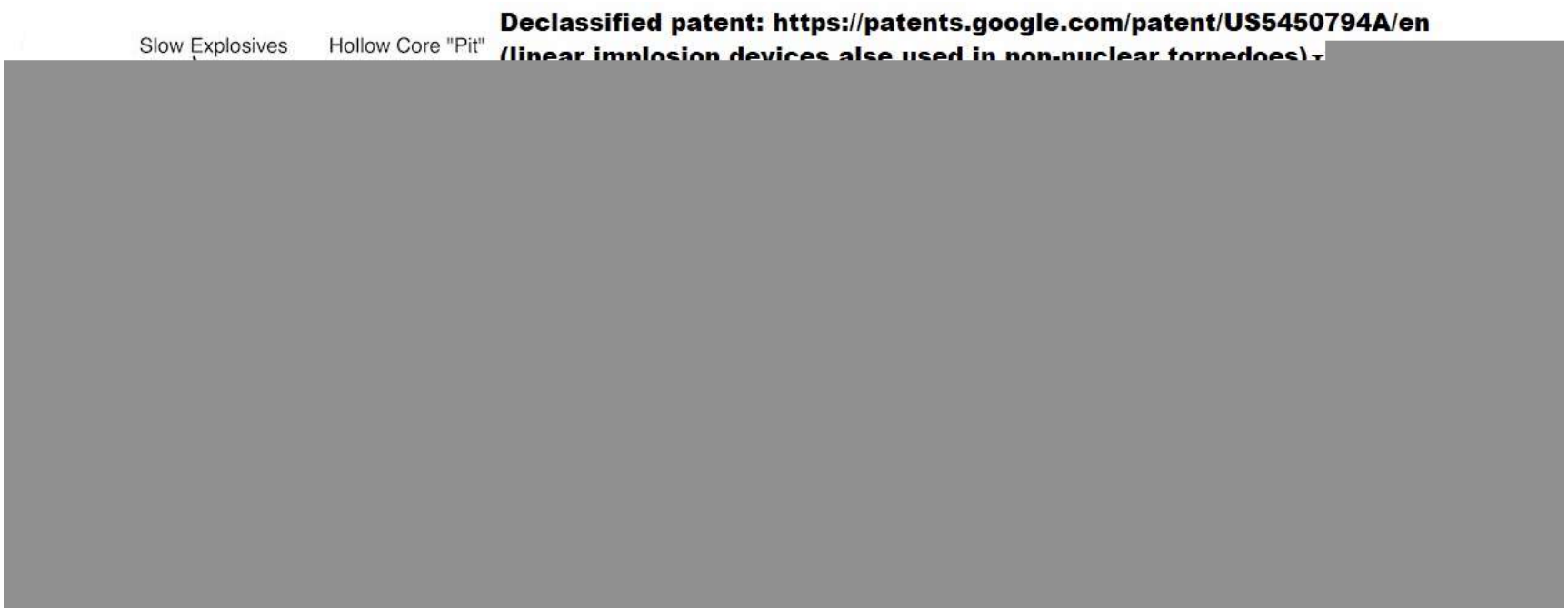


ABOVE: the **405-pages, originally Secret 1969 *Proceedings of the Tactical Nuclear Weapons Symposium,* Los Alamos document LA-4350-MS, has been declassified and is available on Opennet (pdf is LINKED HERE).** For 1 kiloton of D-T fusion air burst at 750 feet altitude (for the W79 this fusion yield is reportedly 0.3 kt, so you multiply the following doses by 0.3, before adding on the fission dose from 0.8 kt of fission), Dr Hudson's Lawrence Radiation weapons lab article "Clean nuclear explosive research applicable to tactical nuclear weapons (Secret-RD)", applying clean fusion tests research to peace-making deterrent purpose in the 1969 conference LA-4350-MS, shows that the unshielded dose at a 1,000 ft ground radius or range (i.e., distance from ground zero, not the slant distance from bomb) is 800,000 R (85% being neutrons), falling to 100,000 R at 2,000 feet (75% being high energy neutrons, with the rest being high energy gamma rays from inelastic neutron scattering by the air), and 10,000 R at 3,000 ft radius, but a relatively trivial 10 R at 7,000 ft radius, preventing collateral damage to nearby civilians. **The U.S. Defense Nuclear Agency assessed that immediate permanent incapacitation for all tasks occurs at 18,000 R, or 8,000 R for physically demanding tasks, while 3,000 R produces immediate temporary incapacitation**. The original 1972 secret Capabilities of Nuclear Weapons DNA-EM-1 gives initial radiation data for 8 designs of nuclear warhead, but it was revised and expanded to 13 designs in the 1984 edition. However, the neutron outputs from three of these are practically identical: nuclear warhead types 4 and 7 (1-30 kt boosted two-point implosion and 1-10 kt multipoint implosion) and 11 (30-300 kt cleaner tactical nuclear warhead), all giving about 83.6 rads per kiloton at 1 km ground range for a surface burst on unobstructed silicate soil in sea level density air, plus about 28 rads/kt of secondary gamma rays (the fission product initial radiation dose is independent of bomb design details apart from fission yield and total yield, being 19.3, 332 and 13,000 rads for 100% fission total yields of 1, 10 and 100 kt). For comparison, nuclear warhead type 13 in EM-1, the 1-2 kt enhanced neutron warhead produces about 20 times that dose (1,660 rads/kt of neutrons and 450 rads/kt of air secondary gamma if surface burst; a 1 kt "type 13" neutron bomb air burst at 500 m altitude gives a dose at ground zero of 170,000 rads of neutrons plus 27,200 rads of secondary gamma rays, according to EM-1). At the other end of the scale, the lowest neutron dose, just 0.666 rads, is produced by the type 10 in EM-1 (the low-yield fission primary stage "dial a yield" option of a B61 thick-cased thermonuclear weapon having multiple yield options). This is because the outer casing on a weapon with high yield options absorbs most of the neutrons from the primary stage, and thereby shows that *you cannot simply use the low-yield option on a B61 as a replacement for tactical nuclear weapons like neutron bombs*.

Weapon Yield	Overpressure (psi)	Triple-Point Burst Height (m)	Slant Range (m)	Tissue Dose (rads)			
				Neutrons	Secondary Gamma Rays	Fission-Product Gamma Rays	Total[c]
40 kiloton	5	1210	2358	~1	4	<1	5
	10	900	1470	200	320	45	565

Note that once NATO C3I command is neutralised by Russian nuclear forces, e.g. **EMP high altitude burst effects** if not blast and nuclear radiation from surface or low altitude bursts, blitzkrieg by troops protected by armour enables rapid invasions, even in fallout radiation areas (**tanks and APCs offer good shielding against the low energy gamma rays from fallout, unlike the higher energy initial flash of gamma rays and neutrons**). When on 8 December 1991, the presidents of Russia, Belarus, and Ukraine dissolved the USSR, the Soviet military was 3.7 million strong. "**From 1945 to 1948, the Soviet Armed Forces were reduced from about 11.3 million to about 2.8 million men**", while the Soviet Union actually increased in size, as puppet governments were installed across half of Europe, despite the American nuclear weapons monopoly until 1949. Today, with the tactical nuclear deterrent removed from Europe, it is only necessary to blow up the military and political bases in Europe to destroy its capacity to harm Russia by economic warfare and military support to enemies of Russia. A business which puts its rivals out of operation becomes a monopoly. It doesn't necessarily have to send in huge numbers of "boots on the ground" to physically occupy all the destroyed rival business offices in order to succeed in "winning" the war; remember that in both the Third Reich and USSR/Warsaw Pact/Iron Curtain era, occupied countries were put under puppet governments (Vichy France, etc.) in a thinly camouflaged effort to portray the occupation as a mutually cooperative "peace initiative" (i.e., "you will do was we say, then we won't shoot you and blow your cities up, how's that for peacekeeping collaboration?").


X-ray mirroring: secondary stage
Capsule with
Ablator, low-density
Drive energy
Capsule ablator
Hot spot
Main fuel



To give some idea of the complexity (the diagrams above are open-source, unclassified, not to scale, and demonstrating principal concepts pictorially rather than as design blueprints) of the compact 1950s designs of tactical warheads that now form the primary stages in American two-stage missile warheads, **please see the biography of John S. Foster, Jr., the Lawrence Livermore National Laboratory physicist who led the designs of the compact primary stages needed for compact SLBM and MIRVed ICBM warheads. The quotations about the history of the modern primary designs that follow are from T. F. Ramos, *Call Me Johnny,* Lawrence Livermore National Laboratory, report LLNL-BOOK-783447, 2019**:

"Much of the effort to design an atomic device relied on using a computer program, or code, to guide the designers. The group's computer code support came from Bob LeLevier and Chuck Leith. Leith was a real computer pioneer. He had written out the Laboratory's first codes on one of the world's first computers, the UNIVAC. The physicist Jim Wilson, who was a distinguished graduate from UC Berkeley and a member of T Division, was yet another code developer, and became Johnny's technical leader. In 1954, in a series of nuclear tests called Operation Castle, the Laboratory had once again fielded a shot that failed. This was a test of a Megaton Group secondary. It was the

third successive nuclear test failure of the Laboratory. There were powerful men in Washington, DC who wanted to see the new Laboratory in Livermore shut down. The stress of the failure had its effects on Lawrence and Teller, and they both suffered from attacks of colitis and had to be hospitalized. Herb York came down with Valley Fever and had to remain at home in bed rest. That meant that the future of the nuclear weapons program at the Laboratory rested squarely on the shoulders of Johnny Foster and Harold Brown. ...

"Johnny was especially interested in designing a weapon for the Army, which during the Korean War, had experienced massive “human wave” attacks of Chinese soldiers – assaults that had almost destroyed Eighth Army. The Chinese Army attacked with large, closely packed formations that overwhelmed American defenses. Chastened, the Army wanted a nuclear artillery shell that would deter any nation from using those tactics again on a battlefield. ... He did not know it, but a team of Los Alamos engineers and technicians had developed a diagnostic technique called a pin dome that could measure how a device imploded. ... The Cleo was a tactical weapon, suitable for the Army, and it promised to be one of the smallest atomic devices yet developed. The Cleo concept required multidimensional modeling to fully understand its workings, and Jim Wilson performed Cleo calculations on new codes that he wrote. But even with Wilson’s talents, multidimensional computer codes were primitive affairs in 1954. ... For its transport to the Nevada Test Site, the Cleo was constructed in two parts, and each part was placed into a reinforced Samsonite suitcase [Cleo was tested in Nevada on 1 March 1955 as 7 kt Teapot-Tesla, atop a 300 ft tower. The predicted yield was 3.5-7kt. It was only 10 inches wide, 39.5 inches long, 785 lb, and used an external Zipper neutron gun. An even smaller version, Cleo II, was tested as 2 kt Teapot-Post on 9 April 1955, 34.2" long, weight 322 lb]. ... The Cleo had worked; the first warhead from the Laboratory to do so. Someone, apparently, had leaked information out about how the device had been delivered to the tower. Time magazine wrote a story about a new type of nuclear weapon that could fit inside a suitcase. ... Lawrence opened a discussion by asking, “Why do we need small diameter nuclear weapons?” Teller responded that they were needed for nuclear artillery, which had been identified as a need for the Army."

- T. F. Ramos, "Call Me Johnny", Lawrence Livermore National Laboratory, report LLNL-BOOK-783447, 2019, p. 19-22, https://www.osti.gov/servlets/purl/1576166

"For the tests of 1956, Johnny organized the Hectoton Group into three teams; each team was responsible for designing an atomic device that deviated from the other devices in some way. He instituted a protocol that named each new device after a bird, and the three devices were called the Swan, the Swallow, and the Swift. They were radically different from the Cleo. ... The Swallow came the closest to resembling a nuclear artillery shell. The Swallow’s design had to be strong enough to withstand the high torque and acceleration it would experience after being fired from an artillery tube. ... The smallest device was the Swift. The Swift team was led by an Air Force captain named Jasper Welch, who would eventually rise to the rank of major general. ... With the coming of summer 1956, Johnny moved his entire group to Eniwetok. ... There were huge clams living inside the atoll, and Johnny wanted to take home a large clam shell. ... When he

came to the surface for air, Johnny noticed several sharks circling in the lagoon a hundred yards away ... A Hectoton physicist named Larry Germain [**Lawrence S. Germain, author of the LLNL history of tactical nuclear weapons and related thermonuclear primary stages, see illustration; above from our compendium of declassified data linked here**], who always wore a pair of thick glasses, was treading water nearby, and Johnny asked him to watch out for the sharks and warn him if they began to get closer. ... When he resurfaced, there was no Germain, and Johnny noticed that the sharks were coming closer. He swam back to shore, and spotted Germain lying on the beach. When he asked Germain why he had left his post, the bespectacled physicist responded, “Well, I thought about what you said about there being sharks in the water, and I decided to get out of there.”

"It was time to test the devices, starting with the Swift [0.19 kt Redwing-Yuma, 27 May 1956, 5 inches in diameter, 24.5 inches long, weighed 96 lb.] . It was tested atop a 200-foot tower. It gave a low yield, about one-fourth of what had been expected. This was not an encouraging start. ... they would have to wait and see how the other designs worked. That opportunity came two weeks later, with the test of the Swallow [1.49 kt Redwing-Kickapoo, 13 June 1956, 8 inches in diameter, 28 inches long, weighed 225 lb] atop a 300-foot tower. The mediocre performance of the Swift made the mood tense. ... the Swallow performed well, rendering a yield greater than had been predicted. The Army had wanted a tactical nuclear device, and it looked like they may now have one. Next it was the Swan’s turn. When test day arrived, the same controls that had detonated the Swallow now triggered the Swan, which lit up the South Pacific sky and gave a yield in the upper part of its predicted range of values, which was gratifying [**Swan, reported to be a boosted a two-point ignition hollow-pit air-lens flying plate slapper device, aka XW-45**, was tested as the 15.2 kt Redwing-Inca nuclear test on 22 June 1956, with a mass of 47.6 kg, a length of 58 cm and a diameter of 29.5 cm. On 2 July 1956 it was used as the primary stage of the 360 kt Redwing-Mohawk test which used a Flute secondary stage. Mohawk was 15 inches in diameter, 46.2 inches long, and weighed 1116 lb]. This was the mothership of their atomic designs – the main hope for the Hectoton Group – and it had performed well. ... At a meeting held back in Livermore in August 1956, Johnny announced, “A study named Robin has been started on a different method of implosion [Dr Peter A. Goetz states the Robin was melon shaped in *A technical History of America's Nuclear Weapons,* v2, revised edition 2020, p209: "The Robin contained a hollow, boosted, plutonium core that resembled a "thick eggshell" ... Instead of using a shockwave to shape and compress its core ... Robin relied on deflagration ... burning ... at subsonic velocities ... the explosive envelope of the Robin primary was composed of PBX9404 (94% HMX) and its core was composed of alpha-phase Pu239, the densest known allotrope ... 19.89 g/cc"]. It aims to achieve a device characterized by light weight, ruggedness, and moderate efficiency.” ...

"They quickly converged onto a design that was a marvel to study. There were originally two versions of the Robin, Robin A and Robin B. The first A version used enriched uranium as its nuclear fuel, and it was cumbersome. The second version, Robin B, had a plutonium pit and when it was tested, it performed exquisitely. The Robin B was a true descendent to the original Geode concept. It was light and rugged, and it gave a significant yield. When the Robin B team was done, the device could be carried by one man. ... The Robin never showed up in America’s nuclear stockpile; that was not its legacy. It was much more important than that. It became the foundation upon which to build warheads for the future. It was the ultimate fission weapon, the prototype used to build the country’s modern stockpile. [However, Robin primaries were used in the 1963 Lawrence Livermore Lab W47Y2 X1 warhead, with an oralloy (U235) Fife secondary stage, for the Polaris A2 SLBM. In 1965, when tests showed that 75% of these 144 Robins failed due oiled neutron absorbing wire corroding permanently into the plutonium core of the Robin primary - this cadmium-boron wire was supposed to be pulled out by a small electric winch motor automatically before detonation as a safety system to prevent nuclear yield release in accidents - the Robins were replaced by 10kt boosted linear implosion Kinglet primaries. The Polaris A-3 carried three 200kt W58 thermonuclear warheads, the first

American deployed devices with spherical oralloy loaded Tuba secondaries, Kinglet primaries and thorium casings. Polaris was important not only for giving a protected second strike capability to the West, eliminating the dangerous need for launch on warning and a first strike to avoid missiles being hit first like sitting ducks in a surprise strike by the enemy, but also for replacing regional land based missile systems. For example, the old vulnerable Jupiter missiles in Turkey which Kennedy removed in "exchange" for the removal of Khrushchev's missiles in Cuba, were simply replaced in March 1963 by the USS Sam Houston SSBN-609, an A-2 Polaris submarine using a base at Rota in Spain. So Khrushchev actually improved American nuclear deterrence by asking for the junk Jupiter missiles to be removed from Turkey!] "

- T. F. Ramos, "Call Me Johnny", Lawrence Livermore National Laboratory, report LLNL-BOOK-783447, 2019, p. 23-27, https://www.osti.gov/servlets/purl/1576166

HISTORY OF SCIENCE. To the anniversary of victory in World War II

The Tsar projectile

D. V. SHIRKOV

Almost everybody has heard about the Soviet nuclear and thermonuclear bomb projects that strengthened the victory in the Second World War and saved the world from the threat of a new global catastrophe. However, not many people know the story of the artillery fired atomic projectile

ABOVE: the Russian's took *three years* to develop their first small-diameter two-point linear (long-axis compression) implosion "Melon" device, without using computers, which was tested with success (full design yield) in March 1956. An illustrated article, *The Tsar*

projectile for nuclear artillery, by one of its developers, Dmitry V. Shirkov (in charge of predicting the yield, not so easy for a radical two point linear implosion device if you don't have any computers!) is **linked here**, see also the **page here**.

NEUTRON BOMB AND PAL SECURITY PIN NUMBER SYSTEM:

"The Soviet Union maintained a huge army in Eastern Europe that was poised to launch itself against the democracies of Western Europe, especially West Germany. Its 96 divisions consisted mostly of armored forces and mechanized infantry – tanks and soldiers mounted in armored vehicles. B Division physicists came up with an idea for a weapon that could be used against Soviets tanks in an invasion. Their idea was to attack Soviet tank crews without destroying the surrounding West German countryside by detonating the weapon at a high altitude. The weapon was called an enhanced radiation warhead because it could release more radiation, especially neutrons, aimed at tankers while having a reduced blast. It would deter the Soviet Union from launching an armored attack against the West. Johnny decided that the enhanced radiation warhead qualified as a valid weapon to test in the new operations.

"The RAND Corporation, a so-called “think tank” headquartered in Santa Monica, California, is used by the Department of Defense for studies related to national security. From its earliest days, analysts from RAND visited the Laboratory to observe how the country’s nuclear weapons research was progressing, and true to form, a RAND analyst named Sam Cohen visited Johnny to ask what was new. Johnny described the enhanced radiation weapon they were testing, and Cohen exclaimed, “You’ve invented the neutron bomb!” Cohen went back to his office in Santa Monica and wrote up a report in which he described what he had heard about the new weapon, and he claimed that he had invented it [**this is inaccurate and relates to a later meeting in 1962 not Cohen's key visit in 1958, according to Cohen, and Johnny wasn't developing a neutron bomb to end world wars, but cleaner, low yield thermonuclear weapons "Dove" and "Starling" for project Plowshare, and it was him - Cohen - who in 1958, after looking at the "Dove" and "Starling" designs, asked for their neutron outputs off his own back, and then put together the collateral-damage-averting two-stage 1-2 kt enhanced neutron air burst concept for deterrence of invasions**!]. The weapon underwent development over the years until it was ready to be deployed with NATO troops. ...

"Six months after the crisis over Berlin, [President] Kennedy flew out to Berkeley to receive an honorary degree from the University of California [23 March 1962] ... The nuclear warheads that Kennedy had relied on when he faced Soviet threats had been designed by these very same scientists, and Kennedy wanted to thank them personally. As Director of the Laboratory, Johnny would be giving the President a briefing to show him the warheads that were part of the backbone of the nation’s defensive posture. ... Full-scale models of the Polaris and Minuteman warheads were placed on demonstration tables, and Johnny showed the President the strategic warheads. After that, Johnny planned to give a pitch for an idea he had conceived the year before concerning the security of tactical nuclear weapons. He had an idea about how to protect the weapons, and he initiated a program to design a sophisticated anti-theft system that came to be called the

Permissive Action Link (PAL). ... ; Johnny explained the PAL concept and Kennedy became animated with the demonstration and pulled up a chair and sat before the device. ...

"The President liked the idea and agreed with Johnny's approach to solving the problem. Kennedy asked his Presidential Science Advisor, Jerome Wiesner, to look at the matter more deeply, and Wiesner replied on May 29, 1962, that the approach seemed to be a good idea and a timely solution to a national security need. On June 6, Kennedy issued National Security Memorandum No. 160, which directed the Department of Defense to install PAL systems into selected nuclear weapons, principally those in NATO. On July 6, 1962, the New York Times reported, "President Kennedy asked Congress today for $23,300,000 to install electronic locks on nuclear weapons in this country and abroad as a safeguard against accidental or unauthorized firings." "

- T. F. Ramos, "Call Me Johnny", Lawrence Livermore National Laboratory, report LLNL-BOOK-783447, 2019, p. 31-33, https://www.osti.gov/servlets/purl/1576166

"Into the 1960s, Los Alamos and Livermore were designing primaries that were huge by today's standards. This changed, beginning in 1967 and into the early 1970s, with the Defense Department's drive to obtain smaller, lighter, and more efficient (greater yield for the weight) primary designs: primaries that would then reduce the size and weight of the entire warhead. The Defense Department's goal was to develop ballistic missiles that would carry multiple, independent reentry vehicles (MIRVs) aimed at multiple targets. Such warheads required a revolutionary new primary design. At Livermore, Seymour Sack's smaller, lighter, and more efficient primary design was reasonably well developed. His was the leading design for a MIRV warhead used on the Minuteman and Titan II missiles. To successfully advance upon Sack's design [Robert K.] Osborne, who had experience working on a previous effort to improve primary designs, took the lead on the Los Alamos design efforts. His result, after designing and testing multiple variations, was the primary used in the W76 warhead that arms ballistic missiles carried on the Navy's Trident-class nuclear submarines. The W76 is the most numerous warhead in the U.S. nuclear stockpile." - Jeremy Scott Best, *The Giants of the Nuclear Testing Era: The Works of Robert K. Osborne,* Los Alamos National Laboratory report LA-UR-18-27654, 2018, page 8.

HERMAN KAHN'S MUNICH ANALOGY FOR NUCLEAR COERCION BY A RUSSIAN DICTATOR

Munich September 30, 1938: in exchange for a worthless paper agreement promising "peace", Chamberlain allows Hitler to invade the German populated part (Sudetenland) of Czechoslovakia, declaring the need to peacefully protect its own foreign nationals (Germans) living in other countries. Big fuss in media: talk of sanctions, weight of world's opinion weighing on shoulders of Hitler to restrain him - proving that appeasement has allowed Britain time to rearm slower than Germany, thereby removing any real deterrent, and reassuring

Hitler that we are committed to "peace in our time". (He had already annexed Austria, but that was permitted just like Crimea's annexation by Russia in 2014.) Six months later - after world's media has "moved on" - the remainder of Czechoslovakia was invaded by Hitler (March 1939). Next invasion (12 months after invasion of Sudetenland of Czechoslovakia): Poland (September 1939). Chamberlain has finally drawn a line in the sand (after years of him and his predecessor Baldwin rearming the UK slower than Germany, allowing any hope of deterrence to slip away, by permitting an enemy to go from no threat in 1933 to a bigger military than the UK, *requiring UK rearmament, prior to any credible deterrence being feasible**): he finally tells Hitler invading Poland will provoke war. But given the previous farce, Hitler is not deterred by the paltry level of UK rearmament (compared to Germany), and invades Poland.

Note that once the remainder of Ukraine is invaded by Putin - he has already condemned the government of Ukraine as a danger for fighting to defend parts of its own country that border the Russian bear, so everyone can see where the ship is headed - he will be in Hitler's situation in 1939, since Ukraine has a direct border with Poland. The next replay of history will be that "Poland has been a member of NATO since 1999, and NATO presents a threat or antagonism to Russian occupied Ukraine, which must be neutralised to preserve the peace of mind of Putin and his comrades. If NATO tries to defend its members from further Russian peace keeping invasions and conquests, then Putin/Russia will be forced, regrettably, to use its ICBMs etc. to defend itself, and since America has no ABM since the Safeguard system was defunded by Congress anti-nuclear fanatics like Biden in 1975, goodbye democracy." Also note that Putin has more nuclear warheads and Novichok nerve gas than the West. (**Until 22 June 1941, Russia was on Hitler's side and jointly invaded Poland in September 1939, contrary to all airbrushed Russian school history books; and all left wing UK school history books! The reality is the secret annex to the 23 August 1939 Russian-German Molotov–Ribbentrop so-called non-aggression pact, which led to the invasion of Poland by Germany and Russia on 1 and 17 September 1939, respectively, according to which Poland was divided up between the two invaders, Russia and Germany; a fact that Russian and left-wing Western pseudo historians have sought to ignore, play down or cover-up. The point is, there is an historical precedent here to Russian aggression in Europe, despite propaganda denying it**.)

Russia could invade not only Ukraine but Europe, if you look past troop numbers to the Russian nuclear and chemical missile stockpile in relation to the West's, which has been depleted (Joe Biden as an anti-nuclear senator for decades was always pushing for Western arms reduction, encouraging enemy aggression). Once Ukraine is invaded by Russia, Poland will be on the new Russian border. It's quite possible that if the chips go down and blitzkrieg becomes the order of the day, NATO will collapse. It just doesn't have the firepower of Russia, undermining deterrence. Kennedy deployed 0.02kt yield W54 tactical battlefield nuclear weapons to Europe to deter invasions. (**Little Feller I, on 17 July 1962, proved the W54 - reportedly a scaled down 2-point prolate spheroid implosion Swan device - to observer Attorney General Robert Kennedy, in the last ever atmospheric nuclear test at Nevada Test Site, the film of which was only declassified on 22 Dec 1997. Fired by a crew of two using a 155 millimeter launcher, it detonated at a height of burst of 20 feet, some 1.7 miles from the launch point with a 0.018 kt measured yield. An identical warhead was tested as Little Feller II, 10 days earlier, gave 0.022 kt, also demonstrating a W54 yield reliability of 0.02kt +/-10%.) After Nixon decommissioned them, Carter and Reagan replaced them with W79 tactical nuclear warheads, which remained a credible deterrent against invasions (unlike trying to deter the invasion of Crimea by saying you will bomb Moscow) until the Cold War ended. The USSR collapsed. Then people like Biden lobbied successfully to get rid of tactical nuclear weapons in the 90s, and now we don't have a credible deterrent. How can a threat to put sanctions on Putin, or to bomb Moscow as a last resort, deter an invasion of the Ukraine, when he has a bigger nuclear stockpile plus chemical weapons like Novichok? It's insanity. End of story.**

We have experience of this insanity from disarmament propaganda by enemies of liberty, freedom and democracy, not just from Hitler's invasions in the 1930s, but from Stalin's invasions in the 1940s and his successors until the Cold War supposedly ended with the break up of the USSR: America had a monopoly on nuclear weapons until 1949, but it failed to make enough, quickly enough and was unable to use nuclear weapons as a credible deterrent to prevent Stalin from seizing half of Europe after WWII. Puppet governments controlled by Moscow (backed up by tank invasions whenever the strings on the puppets broke, e.g. Germany 1953, Hungary 1956, Czechoslovakia 1968) *put tanks on the border of NATO. Then, tactical nuclear weapons were needed until the end of the Cold War to prevent invasions. When they were not there, invasions occurred. When they were available, invasions didn't occur. QED. They tipped the balance of risk against aggressors in a way that sanctions and massive retaliation bluffing doesn't.* Biden and comrades in the 70s used the old 30s mythology of "arms control" to try to get rid of credible deterrence. The typical argument is that deterring world wars using the credible deterrence of tactical nuclear weapons is "dangerous" to people planning invasions. That's the whole point. The nuclear fear mongering issue of the much higher background radiation in the mile high city of Denver (if you are fanatical about radiation, then why not start by banning mountain climbing, high altitude cities, aircraft, etc, rather than the fallout from nuclear technology?), also occurs with nuclear weapons deterrence: if you think high yield nuclear weapons that could cause collateral damage are a problem, then why not campaign positively for the tactical weapons that deter the invasions that triggered world wars (the invasion of Belgium in 1914, and Poland in 1939) in place of strategic warheads which fail to deter invasions? If we only have tactical nuclear weapons, we can only stop invasions and there can be no escalation risk. In both cases, it's obvious that the anti-nuclear folk are conning the media, successfully as their forebearers did in the 1920s and 1930s. **This was the case also in the 1920s and 1930s when poison gas bomb scare mongering was used in the media to successfully prevent credible deterrence, tragically resulting in world war and tens of millions dead. As the Cold War proved, even carrying a big stick is no deterrent if you speak softly to make it appear incredible. The squealing from the pro-Russian so-called anti-nuclear media folk against the W79 neutron bomb 40 years ago proves that was a credible deterrent (they wouldn't have cared otherwise).**

The Western media outlook until a few days ago was that the 150,000 or so Russian troops around Ukraine was just the normal Russian military training exercise, pushed nearer the Ukrainian border for added realism, and such numbers are not enough to occupy Ukraine or Europe, so there can't possibly be a real problem, just American bear-baiting propaganda. Not so. Again, as we saw in the Cold War conquest of Eastern Europe, and even before that in the Third Reich era, you don't actually need huge numbers of boots on the ground to successfully invade countries. All dictatorships are by definition a minority controlling a majority - if it were the other way around dictatorship would not be needed since democracy is a numbers competition where the majority tribe or party wins (even if they have to rely on postal ballots). In any case, secret police (Stasi for instance, in East Germany in the Cold War) did the major job of controlling dissent, not Russian boots on the ground. The primary techniques used are political infiltration, coercion, media subversion, propaganda, fear, and political concentration camps/Gulags for dissidents, which massively reduces the need for large numbers of troops. Putin's seizure of Crimea was done using Russian special forces with their insignia removed from their uniforms. There are lots of tricks involved in warfare to reduce the troop numbers required for invasions. Putin's latest one, officially "recognising" the separatist Russian-infiltrated parts of Ukraine bordering Russia and its sphere of influence, doesn't require a million boots on the ground. Like Hitler's annexation of Austria or Sudetenland, you can "invade" with a token force once you have infiltrated it first by stealth. This was the whole point of Hitler's "peace" propaganda machine in the UK in the 1930s, and the USSR's World Peace Council. Invasions occur at first by reasonable appearing salami tactics: small "peace keeping" incursions are then followed by support to rebels until those rebels mount an assisted coup

d'etat or declare a separatist state in their region. **Then the process is simply repeated to get further slices, until the rebel numbers become big enough for blitzkrieg to be a success.**

ABOVE: **1974 USSR nuclear weapons design poster showing critical masses under different conditions**, pointing out that using implosion for compressing a subcritical 12 kg mass of U235 makes it critical, compared to needing 48 kg (a 16.8 cm diameter sphere) for a critical mass of uncompressed U235. Switching to Pu239 reduces this by a factor of 2.82, while enclosing it in a 10 cm thick neutron reflector reduces the bare sphere critical mass by a further factor of 3.42. A combination of using both a neutron reflector and core compression can produce better than a 10-fold reduction in critical mass, according to Russian nuclear weapon designers. The simple Russian Sakharov-Zel'dovich elliptical thermonuclear design published by Uwe Parpart in the 15 October 1976 issue of *New Solidarity* allegedly originates at least in part from the July 1976 disclosures at U.S. labs by Soviet physicist Dr Leonid I. Rudakov, which also led to an earlier 8 October 1976, article in *Science,* entitled "Thermonuclear Fusion: U.S. Puts Wraps on Latest Soviet Work", page 166. (In March 1976 Pravda claimed Dr Rudakov had solved the clean fusion power problem using implosion principles.) The Rudakov principle demonstrated how hard radiation energy from the primary (fission) stage of a nuclear weapon is reradiated by a plasma as soft x-rays, to compress fusion fuel at the focus of a 1950s Russian nuclear weapon ellipsoidal radiation case. According to Chuck Hansen, the first American nuclear test using this Sakharov-Zel'dovich ellipsoidal radiation case was the Egg design, fired as the successful 250 kt Redwing-Huron shot at Eniwetok Atoll in 1956 (this is according to **Sybil Francis, *Warhead politics: Livermore and the competitive system of nuclear weapon design* page 131;** it also used a spherical secondary stage - the L-3 concept referred to by Francis - which wasn't liked by the USA - unlike Russia and Britain - because of the complexity of doing 3-d computer calculations for the geometry spherical isotropic compression in the 1950s; spherical secondaries were first deployed by America in miniature thermonuclear weapons in 1963, namely the 200 kt, 117 kg Polaris warhead W58 and the 170 kt, 115kg Minuteman warhead W62, while Britain and Russia had by then stockpiled weapons with spherical secondard stages for years). **Dr Friedwardt Winterberg mathematically analyses the use of an ellipsoidal radiation case with fission and thermonuclear stages at the focii, in his 1981 book *The physical principles of thermonuclear explosive devices,* Figure 4 (below), explaining how x-rays of varying energies can be mirrored. Even so, you can**

make paper calculations that are testable in the field, without requiring 3-d computer simulations, as proved by the 1950s British and Russian programmes.

The American insistence on fuller theoretical analysis prior to testing was bureaucratic time-wasting. It was Teller's less dogmatic Livermore that took up the discarded excellent Los Alamos Huron spherical secondary in 1958, testing to develop warheads not unlike today's contemporary designs. The need for complex computer design simulations may be averted by simple "overkill" to compress and ignite fusion charges using x-rays from *multiple* stages, bombs within bombs like a Russian doll to avoid the need to enhance the primary stage yield using tritium gas with its 12.3 years half-life (as shown, Howard Morland's use of the 1958 lithium deuteride stage idea in his book reproduces an actual design tested in the 1960s called "Swiss cheese", in which the fusion stage contains several separate subcritical lumps of fissile fuel which release neutrons into lithium deuteride, as an alternative to Teller's original cylindrical "spark plug" idea). These weapons are very simple to service, and incorporate "reliability through redundancy", since the multiple fission primary stages allow for reasonable thermonuclear efficiency even if one primary stage fails for some reason. The accompanying official limited distribution Russian nuclear weapons employment manual, *Nuclear Weapons - A Manual for Officers*, which we obtained (all three editions) from Ukraine, has photos of Russian MIG-15 fighter jets and tanks which were exposed to nuclear tests by Russia (see illustrations below), and many tables and graphs showing the measured blast and radiation effects of 8, 30 and 150 kiloton yield nuclear tests on different targets, plus thermal effects from a 50 kt test, and is **linked here - these confidential Russian nuclear weapons capabilities manuals differ drastically from Glasstone's American exaggerations for propaganda on nuclear effects, e.g. Table 3 in the 1961 nuclear test data compilation shows very different data on thermal effects to Glasstone's Effects of Nuclear Weapon. Russian test data from a 50 kiloton burst shows glass only begins to melt at 700-800 cal/cm^2, while white boards only ignite at 150 cal/cm^2 (although they temporarily smoke or char at 40 cal/cm^2)! (Note that in the Russian tables, кал = cal.) The Russians also show how building skyline shadowing stops most direct radiation**. We also uploaded extracts from the **128 pages standard Russian manual, *How to operate in the conditions of application of nuclear, chemical and bacteriological weapon,* by the USSR's Department of Defense, Moscow, which has 99 illustrations, and other Russian manuals linked here**, and there is a **Russian translation of the Glasstone propaganda book here**.

Further reading: a complete analysis of this invasion situation is included in our 2015 detailed review of Kahn's *On Thermonuclear War*, linked here (in summary, sanctions can escalate such situations into all-out war; so the people talking about "hard-hitting" sanctions, who don't and won't have either a credible nuclear deterrent to prevent invasions or civil defence to withstand enemy threats, are effectively - despite their lies to the contrary - the warmongers). In Chicago, on 5 October 1937, President Roosevelt (Democratic Party) gave his "quarantine the aggressor speech", to destroy fascist dictatorships without the need for military deterrence: it failed since Japan had hard-hitting sanctions placed on it by America, after it started expanding by force prior to WWII, which led to the Pearl Harbor attack and the Pacific Theatre of WWII, instead of peace. If someone is pointing a large nuclear stockpile in your direction and is hot-headed enough to use Novichok nerve agent and Polonium-210 radioactive agent to kill people in the UK during "peacetime", then what is going to happen if you put hard hitting sanctions on them? Their media will present it as being an act of war; it will provide the excuse to escalate the situation. This sanctions idea, like disarmament for peace, is an example of groupthink autism, whereby nonsense propaganda is used to saturate the media to submerge the key facts, just as occurred in the 1930s when the media became obsessed with proclaiming that appeasement would produce "peace in our time". Some relevant **extracts from UK declassified Cold War manuals can be found here** and the **Russian nuclear weapons employment manuals we obtained from Ukraine prior to the invasion are linked here**.

Putin's Kremlin instagram post on 8 December 2021 stated (in Russian): **"Experts spoke about the reasons for the negotiations between Vladimir Putin and Joe Biden. Sanctions do not threaten Russia, and the United States is interested in dialogue, said Vladimir Vasiliev, chief researcher at the Institute for the USA and Canada of the Russian Academy of Sciences. "The American side is interested in these negotiations. Today, all this talk about the sanctions list, about some other use of sanctions weapons like Nord Stream 2 or List 35, some other measures, I call this the "formula divorce." ... According to the Kremlin press service, Vladimir Putin told Biden during the talks that Russia is interested in receiving legally fixed guarantees that exclude the expansion of NATO to the east and the deployment of strike offensive systems in Russia's neighboring countries. At the same time, the White House claims that Biden, in negotiations with Vladimir Putin, did not give him obligations that Ukraine would remain outside NATO. Russian President Vladimir Putin and US President Joe Biden held talks on November 7 via videoconference."**

(In original Russian: "Эксперты рассказали о причинах переговоров Владимира Путина и Джо Байдена. Санкции России не грозят, а США заинтересованы в диалоге, считает главный научный сотрудник института США и Канады РАН Владимир Васильев. "Американская сторона в этих переговорах заинтересована. На сегодняшний день все эти разговоры о санкционном списке, о еще каком-то использовании санкционного оружия как "Северный поток - 2" или "Список 35", еще какие-то меры, это я называю "формулой развода". ... По сообщению пресс-службы Кремля, Владимир Путин в ходе переговоров заявил Байдену, что Россия заинтересована в получении юридически зафиксированных гарантий, исключающих расширение НАТО на восток и размещение в соседних с Россией странах ударных наступательных систем. При этом в Белом доме утверждают, что Байден на переговорах с Владимиром Путиным не давал ему обязательств, что Украина останется вне НАТО. Президент России Владимир Путин и президент США Джо Байден провели переговоры 7 ноября в режиме видеоконференции.")

If this is accurate, you wish Biden - *already under probation from Joe Public for his disastrous withdrawl from Afghanistan last year, allowing that country to become another dictatorship, just the direction Ukraine will go under his brand of useless grandiose sounding "diplomacy" - akin to Chamberlain shaking hands with Hitler and signing worthless bits of paper, but refusing to deter war credibly and effectively for fear of media condemnation by ignorant journalists* - had been a bit more "diplomatic" and promised Putin that Ukraine would remain outside NATO, or even outside of the universe: by the time it would enter NATO, Biden would be out of office anyway so what was the big deal? (Appeasement is ineffectual sanctions; appeasement is not about successfully averting war by making agreements that can later be terminated if necessary!) Biden thankfully can only serve two terms maximum, even if Trump doesn't get back in next time, and American Presidents hardly bother to honour the promises made by their prececessors, even if they are members of the same party. E.g., Truman renegaded on Roosevelt's wartime promise to Britain to continue postwar nuclear weapons collaboration. Britain then had to independently develop its own fission and thermonuclear fusion weapons until collaboration resumed in 1958! If America can do that, it could have given some worthless paper promises to Putin, to keep him out of Ukraine. The Chamberlain appeasement situation was the exact opposite of this: Sudetenland was given to Hitler in exchange for a worthless paper promise from Hitler!

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*(Footnote): **UK Prime Ministers Baldwin and Chamberlain used a whole array of excuses to keep the UK from deterring WWII, all of which are still used today against nuclear weapons (Kahn pointed this out sixty years ago). For example, Chamberlain**

proclaimed himself (both publically from the window of his flat above 10 Downing Street in September 1938, and in private papers and letters proving he really believed he had achieved peace that way) a hero of peacemaking for allowing the invasion of Sudetenland by Hitler in exchange for a worthless signature from Hitler, promising no more invasions after that one! Then, when proved wrong by events in 1939, Chamberlain lied that he always knew Hitler was lying, but he was a secret hero for cleverly making bogus peace deals in order to "buy time for rearmament", a claim disproved by the fact that *Britain was rearming at a slower rate than Germany, thereby making a military success less likely with every day "bought", and he knew it was.* Chamberlain was as much a lying fraud as Hitler in terms of peacemaking. His lies are still promoted as "news" by bogus "historians" of the AJP Taylor CND peace propaganda lies variety, because many prefer fairy tales.

UPDATE, 27 February 2022: ***Putin puts Russia's nuclear forces on alert, cites sanctions*** **- By Yuras Karmanau, Jim Heintz and Vladimir Isachenkov, Associated Press in Washington post, 27 feb. 2022 - KYIV, Ukraine — "In a dramatic escalation of East-West tensions over Russia's invasion of Ukraine, President Vladimir Putin ordered Russian nuclear forces put on high alert Sunday in response to what he called "aggressive statements" by leading NATO powers. The order means Putin has ordered Russia's nuclear weapons prepared for increased readiness to launch, raising the threat that the tensions could boil over into nuclear warfare. In giving it, the Russian leader also cited hard-hitting financial sanctions imposed by the West against Russia, including Putin himself."**

This report, by Associated Press in the Washington Post, confirms sadly that so far Putin has responded to sanctions by following the predictions made above, escalating his nuclear weapons readiness for war to counter the sanctions with a nuclear threat, akin to what happened when Japan responded to hard-hitting American oil sanctions against it for its 1930s invasions prior to its attack on an American Pacific military base located at Pearl Harbor. This is the whole problem with the arms control situation. Supplying arms to the Ukraine Government to defend itself against Russia could easily be construed to Putin, if he so chooses, as essentially an act of war against Russia, deserving retaliation. Everything the "liberal elite", the left wingers headed by President Biden, does is always at best autistic lunacy that escalates the danger we face. While the BBC may claim that "Putin is isolated"**, he has a larger nuclear force than us, and also powerful nuclear allies in China. It is simply untrue that sanctions will solve the problem; they escalate a crisis into a bigger war. Carpet bombing of civilians, used by Democratic President Johnson in Vietnam, was the same kind of autism; instead of kicking enemies into surrender, such actions as sanctions and attacking civilians just hardens enemy aggression more.

**(Footnote): The 1930s media also claimed incorrectly that Hitler was isolated (he had allies in Italy, Japan, etc.), but such lies in the "free" press helped to back up liars in the UK Government like Baldwin and Chamberlain and their populist lunatic policies for "peace in our time" which also lacked any credible deterrent, and just escalated the threats, encouraging genocide, not peace. Sir Norman Angell's *Great Illusion* argument that economic interdependence of nations prevents escalation in war is precisely reversed by the use of heavy economic sanctions against Russia, which cuts off the supposedly peace-keeping economic interdependence of nations and pushes it into the position of Japan in December 1941 and of Germany in September 1939 (thanks to Roosevelt's 1937 "quarantine the aggressor" theory). Irrational acts, not surrender, is what human nature usually produces when cornered and isolated, despite groupthink brainwashing arguments to the contrary, which were used to determine policy in the Vietnam War and recently in Afghanistan. You need

to accept enemy mentality as it exists, and not "put yourselves in the enemy's shoes", if your way of thinking lacks the paranoia, cultural mentality, and aggressive nationalism of an enemy. Russia is not completely isolated anyway, due to its allies in China, North Korea, et al. The latest ideas on fighting the war in Ukraine being mooted by the BBC pyschotics/pundits centre around allowing Ukrainian pilots flying missions to bomb Russian forces in EU funded aircraft from airbases in NATO country Poland, while claiming that NATO is not involved. Again, the pressures of this kind provide excuses for Putin, if he wishes, to escalate it to WWIII at a time and in a way of his choosing, with the factor of surprise in his hands. Threatening to bomb the Kremlin suffers from the risk that Putin could move to a bunker elsewhere, even if the bunker under the Kremlin is really at risk bearing in mind the Russian ABM system around Moscow that can knock down incoming warheads (lacking from Western cities) and the **nuclear crater sizes exaggeration scandal, which reduces the ground shock and cratering destruction to underground targets due to the ignorance in the 1977 Glasstone and Dolan *Effects of nuclear weapons* book about the work done against gravity in excavating large craters**.

ABOVE: 1986 Russian civil defense manual showing the shelters and evacuation plans which are in many ways similar to British efforts in 1939 prior to the British declaration of war on Germany two days after it invaded Poland. Note that various authors of American *Scientific American* articles argue that the **evacuation plans exist "largely on paper"** as if that somehow allows them to be ignored - just as the 1939 British "Operation Pied Piper" plans to evacuate kids from target areas for civil defence prior to the declaration of WWII against the Nazis - existed on paper until needed. But that didn't prevent kids and other vulnerable people, such as the pregnant, from being evacuated from London on 1 September and war declared two days later on 3 September 1939. The point we are making is that, as Herman Kahn argued, Hitler declared peace on Britain not war, and it was Britain that had to declare war first, and it *first* evacuated the likely bombing target of the most vulnerable using the "paper" evacuation plans to allow it to declare war on the Nazis, something that would have been *or at least seemed* more dangerous without such an evacuation first. The history of Russian civil defense is interesting, since to the Russians (unlike everyone else on the planet), both World Wars led to victories of sorts: WWI caused the revolution of October 1917 which replaced the Tsar with Lenin, while WWII led to the great expansion of the Russian Empire to include half of Europe, allowing resources to be seized which enabled rapid progress, from MIG jets to fission bombs in 1949 and thermonuclear two stage weapons in 1955, then the first satellite in space in 1957 and the first human in space in 1961. It is simply untrue that all Russians view WWII as being the disaster that it is portrayed for Britain. (*Russia actually achieved a victory that included territorial expansion and corresponding financial gains, unlike certain other countries that lost Empires due to WWII.*) According to Professor William R. Kinter and Harriet Fast Scott's 1968 book *The Nuclear Revolution in Soviet Military Affairs* (University of Oklahoma Press, pages 184-191), the Russian **Marshall V. I. Chuikov**, who was made chief of civil defense for the USSR after stopping the Nazis at

Stalingrad in WWII, and later advising Chiang Kai-shek and also founding the Whampoa Military Academy, in 1966 wrote an article in the Russian journal *Military Knowledge,* stating that civil defense allows a Russian *victory* in WWIII:

"The outcome of nuclear rocket war will now be decided not only on the battlefield, it will in significant measure be predetermined by strikes on the rear areas and on important political and economic centres. ***Victory*** *in such a war will depend to a large degree on the ability of the state to* ***survive****."*

- Quotation from William R. Kinter and Harriet Fast Scott's 1968 book *The Nuclear Revolution in Soviet Military Affairs*, University of Oklahoma Press, pages 184-5. (**Emphasis** added to words which are totally taboo here in the West in connection with all things "nuclear". Note that co-author Harriet Fast Scott, a research agent/spy fluent in Russian, lived in the USSR for years in the 1960s since her husband was assigned there as U.S. air attache.)

Kinter and Fast Scott point out on page 185 of *The Nuclear Revolution in Soviet Military Affairs*:

"*Military Knowledge,* the magazine in which the [Chuikov] article appeared, is the official monthly journal of civil defense. There is nothing comparable with this publication in the United States ... The expensive, elaborate family shelters - advertised in the United States some years ago - are unknown. **A practical, inexpensive approach for protection measures, using materials readily available, is stressed.** It is hardly appreciated in the United States that the Soviet Union already possesses the world's finest shelters ... These are the deep, elaborate subways in five of the largest cities - Moscow, Leningrad, Kiev, Tbilisi, and Baku. Many sections of the subways run well over 100 feet below street level and are provided with heavy blast doors ... A large number of the total inhabitants of Moscow and Leningrad could be provided shelter in their subways alone." (**Britain installed some similar deep shelters in various London tube stations**.)

Regarding the Chuikov doctrine on the ability to achieve a "victory" in nuclear war by being better prepared for any eventuality than the opponent, the side which is better able to survive a nuclear war (by civil defense) can be considered the winner: this Marxist concept of war also prevailed successfully in Vietnam, where the Vietcong dug deep tunnel shelters and left civilian kids to be napalmed in the open for left-wing Western propaganda. It worked, they won in Vietnam using that strategy. This is the very opposite of the "knockout blow" mythology that prevailed in Germany in 1914 and 1939, and also in the West during the Vietnam War, but not the 1st Cold War as a whole, where the West achieved victory and the USSR defeat, through the West's surviving longer than the increasingly bankrupt USSR. Herman Kahn pointed out in the 26 June 1959 U.S. Congressional Hearings on the *Biological and environmental effects of nuclear war,* that Germany did not start WWI or WWII by a direct attack on Britain, and that Germany planned for a short "knockout blow" military conquest; in both cases it was Britain that declared war on Germany first, not vice-versa. In other words, "Type I Deterrence (deterrence of a direct attack on Britain)" did *not* fail in either 1914 or 1939. Only "Type II Deterrence (deterrence of an act of provocation, e.g. the invasion of a third party)" failed. So a country starting WWIII, on the basis of WWI and WWII experience, does not need to directly bomb London or New York. Put another way, strategic nuclear weapons, if they had existed in 1914, would have no more deterred the invasion of Belgium then, than they deter the invasion of Ukraine today. For victory you need to be capable of fighting and surviving sufficiently either a surprise attack or long war of attrition, regardless of whether that is an economic cold war via an arms race, or a hot war involving any kind of weapon.

The strategic nuclear deterrent's role is purely Kahn's debunked Type I deterrence - a fallacy due to the Western obsession with "knockout blow" mythology - which also prevailed in the West in the 1930s where the media was filled with hype claiming that single gas or incendiary aerial attacks on cities would induce defeatism and immediate surrender. This was a travesty of logic which ignores precisely those situations - indirect attacks - that triggered both World Wars. Deterring indirect attacks like sinking the Lusitania in 1915, invading Belgium in 1914, bombing a Pacific island naval base at Pearl Harbor in 1941, or invading Poland in 1939, requires not Type I but the more difficult Type II deterrence, tactical nuclear weapons, since conventional weapons failed to deter both world wars and strategic nuclear weapons have not proved to be a credible deterrent against invasions of third parties. This is because the mobilization of conventional conscripted large armies or tank columns to borders for deterrence of large scale invasions is seen as an act of aggression, whereas nuclear weapons of significant deterrent power are small enough to be continuously available aboard submarines and in missile silos and iglo bunkers on airfields, ready at all times without the trigger-happy 1914-crisis-escalating massive mobilizations that set off World War I. As General Boisdeffre stated lucidly to Tzar Nicholas in 1892, the mobilization of conventional weapons to try to deter world war has the opposite effect because the highly-visible mobilization of the relatively bulky conventional weapons and massive armies is naturally a massive escalation rather than a deterrent, causing immense crisis instability:

"THE MOBILIZATION IS THE DECLARATION OF WAR. TO MOBILIZE IS TO OBLIGE ONE'S NEIGHBOUR TO DO THE SAME ... OTHERWISE, TO LEAVE A MILLION MEN ON ONE'S FRONTIER, WITHOUT DOING THE SAME SIMULTANEOUSLY, IS TO DEPRIVE ONESELF OF ALL POSSIBILITY OF MOVING LATER; IT IS PLACING ONESELF IN A SITUATION OF AN INDIVIDUAL WHO, WITH A PISTOL IN HIS POCKET, SHOULD LET HIS NEIGHBOR PUT A WEAPON TO HIS FOREHEAD, WITHOUT DRAWING HIS OWN ..."

The mad emergence of nuclear parity, in the late 1960s and early 1970s, occurred after Robert S. McNamara used now-discredited computerised nuclear war effects models (with no more sensible equations than those he used to lose the Vietnam war, i.e. ignoring Russian civil defense just as the improvised conventional war underground shelters of the Vietcong were ignored) to determine nuclear deterrence stockpile levels. The Russians then produced more weapons than America into the 1970s, and America responded with the neutron bomb and arms control treaties for strategic weapons. **This was a reversal of the American nuclear superiority behind the amicable resolution of the Cuban missiles crisis by Kennedy in 1962, a factor pointed out by General LeMay in his 1968 book *America is in Danger*. (Where the left-wing disarmament-biased "historians" analyze the lessons of the Cuban missiles crisis, they deliberately ignore the massive U.S. nuclear superiority which existed in 1962, and its positive effects on Russian decision making, just as they ignore Feis' argument in *Japan Subdued*, that the emotional aspects of nuclear weapons effects in August 1945 *tipped the balance against accepting a dishonorable surrender; in other words, although Japan knew it was defeated and the nuclear attacks were in that sense totally unjustified, emotionally they needed an "excuse" to hoist the white flag after so much suffering, and this saved 200,000 Yanks earmarked for an invasion of the Japanese home islands as well as 1,500,000 Japanese lives*.)**

There is a compendium of classic 1960s and 1970s arguments for civil defense, and their political suppression by left-wingers and fools, in Nobel Laureate Dr Eugene P. Wigner's *Collected Works, part B, volume VIII*, edited by Jagdish Mehra (Springer, 1998, 258 pages). **Wigner on 28 April 1976 testified before the U.S. Congressional Hearings of the Joint Committee on Defense Production (page 144 in their printed hearings, online version is LINKED HERE) that the new Russian evacuation plans - as shown in its 1969 Civil**

Defense Manual (translated as ORNL-TR-2306, Oak Ridge National Lab.) - are very effective (the Russian civil defense plan includes only essential workers commuting into cities for 12-hour shifts, and using shelters):

"Indeed an easy calculation shows that, if the USSR carries out its city evacuation plans, the total number of casualties that all the nuclear weapons in our missiles could cause would be a good deal less than 50% the losses they suffered in World War II. A reasonable estimate, based on the Oak Ridge [National Laboratory] test of a blast resistant 'expedient shelter', described in the USSR civil defense handbooks, gives for the loss which our missile carried nuclear weapons could cause, about 3% of the USSR population. What about our own situation? ... An evacuation plan [costs] $1.2 billion .... a blast resistant shelter system similar to that of China ... would cost around $35 billion."

In 1979, in a joint article with hydrogen bomb advocate Dr Edward Teller in the U.S. Senate Congressional Record (2 August 1979, page S-11490), Wigner points out that Kahn's Type I deterrence is inadequate to prevent war (Type I is also called "mutual assured destruction", if both sides have parity via "arms control" delusions): "... I believe that the so called Mutual Assured Destruction is nonsense, because suppose even if the attacked nation could retaliate, if the other nation pretends that it does not believe it and makes a demand, is there any point in resisting? What good does it do if it can destroy hundreds of thousands of the aggressors' lives ..."

In his 26 May 1964 address to Mercer County NJ Civil Defense organization (reprinted in his Collected Works, part B, Vol. 8, p35 et seq.), Wigner explains that "people who are against Civil Defense often have some element of frustration ... and they find more easily time for, and outlet in, their opposition," as explained by Robert Waelder's article *Protest and Revolution Against Western Societies*, in M.A. Kaplan (ed), The Revolution in World Politics (New York, 1962, p 18), i.e. it is the same as the mechanism for Marxist agitators, some of which are openly Marxist and others pretend to be libertarian while remaining faithful to the bigoted dictators. Wigner's address continues: "Much more literature - I think 80% - is against than for Civil Defense and much of it is completely irresponsible. A few weeks ago I read an article in the Bulletin of the Atomic Scientists in which the author said that a complete *fallout* [cheaper than blast] shelter program would cost $50 billion. Now $50 billion is more than would be spent on the *complete blast* [and fallout] shelter program which I mentioned [$35 billion]. But ... who will contradict it?"

In **Publication 82 of the American Association for the Advancement of Science, *Civil Defense*, 1966, edited by H. Eyring,** Wigner remarks on page 121: "Dr Rapoport said, in a note to the Bulletin of the Atomic Scientists, that it is possible that surrender to Hitler would have led to fewer deaths ... My view is the opposite in this case: I believe that if the West had shown clear resolve and determination from the start, WWII could have been averted."

After **Leon Goure wrote his May 1972 report, "Soviet Civil Defense - urban Evacuation and Dispersal" (Centre for Advanced International Studies, Miami University, DTIC report AD0745136)**, Wigner and J. S. Gailar wrote in their joint article **"Russian Evacuation Plans - the Fears they Create" in the September-October 1974 issue of Survive (v7, n5, pp 4-5):** "If the leadership of the USSR should change and become more aggressive, it would have, under the present circumstances, a terribly tempting option: to stage an evacuation and to provoke a confrontation when this is completed." Wigner later testified to the **U.S. Congressional Hearings of the Joint Committee on Defense Production, *Civil Preparedness and Limited Nuclear War* (28 April 1976, pp 143-7)** that the principal danger: "is the possibility of the USSR evacuating its cities, dispersing their population, and the making demands on us, under the threat of a nuclear attack, approximating those made by Hitler on Czechoslovakia which led to the Munich Pact."

The only reply Wigner received was a nonsense filled 11-page article attacking all these lessons from Russian Civil Defense, headed "Limited Nuclear War" by Sidney D. Drell and Frank von Hippel, and published in the November 1976 issue of Scientific American, the editor of which, Dennis Flanagan, refused to publish Wigner's rebuttal, entitled "We heartily disagree", just as Kahn's rebuttal to the nonsense review of his book on Civil Defense in 1961 had been refused by Scientific American, leading Kahn to expand it into his 1962 book "Thinking about the unthinkable". Wigner's and A. A. Broyles rebuttal to Scientific American was finally published instead as "We heartily disagree" in the Journal of Civil Defense, v10, pp. 4-8, July-August 1977 issue, pointing out that the Russian casualties with civil defense would be 4% on Wigner's unclassified estimate or 2% using T. K. Jones's classified data estimate (utilizing secret data on the survival of foxholes in nuclear tests, in the 1972 DNA-EM-1 Capabilities of Nuclear Weapons), and that the Russian improvised lined, covered trench shelters survive a peak overpressure of 40 psi as well as heat flash and fallout radiation, and adds that contrary to the nonsense in Scientific American, *the Russians did test their plans by evacuating the city of Sevastopol in a drill which led to improvements in their plans*.

H-bomb proponent Edward Teller, Eugene Wigner, and A. A. Broyles in May 1973 had jointly authored the American Security Council report, "Without civil defense we are in a glass house", which basically argues that you can't have a deterrent for world war if you are not prepared to use that deterrent when your bluff is called. *If you are in Chamberlain's position in 1938 or Baldwin's in 1935, you are scared of using the deterrent because it is like "throwing stones in glass houses", because - if you can't shelter people because you refuse to have shelters and you also won't have a plan to evacuate kids from London (Operation Pied Piper, 1939) before you declare war - then you can easily be scared and coerced by Hitler or other dictators, who can see clearly that your "deterrent" is a complete bluff and totally, pathetically useless, because a weapon you can't use is not a credible deterrent. Naturally, as we keep repeating on this blog, this is what the defeatists who love Putin and other dictators want since surrender has two vital steps: (1) get rid of the shield (civil defense) since that makes the sword credible as an alternative to disarmament, and (2) point out that a sword without a shield is an incredible deterrent that is useless, so we had better disarm (and surrender)! Arms control delusions like supposed "parity" (a balance of weapons on both sides, as if democracies need detering like dictatorships), when one side has credible civil defense and the other doesn't, is like a duel between two people, similarly armed, but with one wearing body armour and the other totally unprotected! Not on that, but the dictator is the one wearing the body armour!*

DEBORAH SHAPLEY, SCIENCE, v 194, 10 Dec 1976, issue 4270, pp. 1141-1145:

Soviet Civil Defense: Insiders Argue Whether Strategic Balance is Shaken

An emotionally charged debate, which is now erupting into the public arena, has been raging within the American intelligence community about the Soviet Union's ability to protect its leadership, industry, and population in the event of an all-out nuclear war with the United States.

Some high officials believe that the Soviet Union is becoming so well fortified through its civil defense program that it could survive and recover from a nuclear war. Therefore, they assert, the strategic balance between the two countries, which has governed foreign policy and arms control for over a decade, has been upset.

But this conclusion is hotly contested in some quarters, and one official simply calls it "a joke."

No matter who is right, the controversy seems to be rekindling discussion of whether the United States should step up its civil defense effort.

The evidence that a massive, accelerated civil defense effort is under way in the Soviet Union is hotly disputed, but government officials who believe this is taking place cite the following to support their case:

▶ A gigantic, 7- to 8-million-square-foot factory hidden under a mountain, "west of the Urals and east of Moscow" of which the stacks, blast doors, and service roads are the only visible elements. Others have also been found.

▶ Population shelters near apartment complexes in Moscow, Leningrad, and Kiev. These look like dirt mounds, but they have ventilation panels on top and stairwells on the side.

▶ About 40 underground grain silos whose reserves are replenished periodically to prevent spoilage.

▶ Approximately 30,000 blast-proof and fallout-proof shelters to protect military equipment, troops, and communications. Altunin is said to have 78 generals under him whom American sources can identify by name.

▶ New industrial plants in dispersed locations away from urban centers. The patterns of development follow those outlined in Soviet civil defense manuals. Several underground facilities have also been found, apparently designed to shelter the work force, goods, or machinery.

Within the intelligence community, the Central Intelligence Agency (CIA) is said to be most skeptical of claims that the above findings, and other evidence, add up to a civil defense effort that military strategists and foreign policy-makers need worry about. Opposing this view is the Air Force Intelligence Service, which found some of the new evidence and which adheres to the view that the program is large enough to threaten national security. The Defense Intelligence Agency (DIA), which oversees the intelligence bureaus of the armed services and which is officially responsible for information on Soviet strategic targets, has taken a middle position.

The discussion has spread to Congress, where members and key staffers have received sometimes conflicting briefings, and where emotions are running high, both among those who think the whole argument is ridiculous and those who believe the United States is already Number Two. Calls for a U.S. civil defense effort, and for new strategic weapons have been issued; and the controversy shows every sign of gathering momentum in the coming year. While his boss was being briefed, for example, an aide to one conservative Republican said, with a gleam in his eye, "It was when I realized the Russians were Number One, that I really began to worry."

Several congressmen have been briefed by Thomas K. Jones, a Boeing Aerospace Company employee and former member of the Strategic Arms Limitations Talks (SALT) staff. Jones, with his mod style of dress, plain-spoken manner, and fervent, almost religious belief in the issue, has become a star witness at a number of hearings. He also acknowledges that he is privy to intelligence information on the status of Soviet civil defense. Jones claims that after a nuclear war, 98 percent of the Soviet population would survive and Soviet industry would recover in 2 to 4 years, as compared with industry in the United States, which would take 12 years to recover.

Prominent nongovernment experts have become embroiled in the controversy. Former Navy Secretary Paul H. Nitze, one of the elder deans of the defense community, recently added legitimacy to Jones's claims when, in an article in the January issue of *Foreign Affairs* magazine, he included Jones's calculations of the relative weakness of U.S.



tions. These include approximately 75 hardened underground facilities in the vicinity of Moscow. Bunkers for the Politburo and other elements of the leadership are said to be enclosed in "giant steel spheres."

▶ An extensive military-run civil defense organization led by General-Colonel A. T. Altunin, an aggressive, relatively young officer, whose rank is equal to that of the heads of the armed forces.

10 DECEMBER 1976



T.K. Jones testifying before the Joint Committee on Defense Production

NOTE: President Reagan recruited T. K. Jones in 1980s. 1141

ABOVE: long-haired scientist **Thomas K. Jones**, better known as T. K. Jones, **(pictured testifying before the Joint Committee on Defense Production, in *Science* magazine, 10 December 1976 after his Congressional Testimony raised the wrath of crackpot Scientific American and Bulletin of Atomic Scientist fans) was the "fall guy" of Reagan's civil defense, doing the explosive tests for Boeing Corporation on Russian civil defense shelter designs and testifing on their consequences for strategic nuclear deterrence - basically debunking strategic nuclear deterrence and McNamara's/Glasstone's totally fake news on urban nuclear weapons effects entirely, since 98% of Russians would survive the US nuclear stockpile when dispersed in shelters** - which inspired Cresson Kearny's Oak Ridge National Laboratory manual, Nuclear War Survival Skills. President Ronald Reagan, prior to his election as US President, was leaked **secret CIA reports on Russian civil defense tests** of shelters and **evidence of their tests of city evacuation plans** for instance by evacuating **Sevastopol** in Crimea and also, in 1975, **Lytkarino** (a suburb of Moscow containing 40,000 people). **A clue to who helped him was shown by Reagan's decision to controversially appoint T. K. Jones as Under-Secretary for Defense for Research and Engineering! A book was then published called *With Enough Shovels: Reagan, Bush and Nuclear War*, ignoring the key scientific evidence entirely, and merely trying to ridicule Reagan's appointment of T. K. Jones (who is quoted on the front cover), as a left wing Democratic supporting political instrument - like Duncan Campbell's similarly vacuous *War Plan UK***. This was left-politics versus hard science. It often appears to work because Mr Joe Public loves a tall-story fairy tale!

If proof of this is needed, Robert Scheer, a fellow in arms control at Stanford University and the author of *With Enough Shovels: Reagan, Bush and Nuclear War*, became "Truthdig" editor-in-chief, **a propagandarist who claims that ending WWII with nuclear weapons made Truman guilty of "the most atrocious act of terrorism in world history", so he needs to check his facts on the numbers gassed in the Holocaust, or starved in Ukraine by Stalin, unless he denies those deliberate acts of terrorism like the other left wing Holocaust deniers who confuse racism and anti-racism, terrorism and anti-terrorism**. When you actually check the facts: (1) Secretary Stimson (U.S. Secretary of War) knew he has a secret nuclear weapons program of investment of billions of dollars to justify to Congress after WWII ended and didn't want to hold back using the bomb for that reason, so he promoted Hiroshima as being a military target (it did have military bases, particularly at Hiroshima Castle just north of ground Zero, but it was also a highly populated civilian city), (2) **Hiroshima's air raid shelters were unoccupied because Japanese Army officers were having breakfast when B29s were detected far away, says Yoshie Oka, the operator of the Hiroshima air raid sirens on 6 August 1945,** (3) Colonel Tibbets, former bomber of Germany before becoming the Hiroshima pilot as commander of the 509th Composite Group, explains how his pilots and crew were ridiculed heavily for lack of accomplishments, while preparing for weeks on Tinian Island. According to Tibbet's own book *The Tibbets Story* a poem was published before Hiroshima called "Nobody knows" lampooning the 509th's results: "Nobody knows. Into the air the secret rose; Where they're going, nobody knows; Tomorrow they'll return again; But we'll never know where they've been. Don't



ask us about results or such; Unless you want to get in Dutch. But take it from one who is sure of the score, the 509th is winning the war. When the other Groups are ready to go; We have a program of the whole damned show; And when Halsey's 5th shells Nippon's shore; Why, shucks, we hear about it the day before. And MacArthur and Doolittle give out in advance; But with this new bunch we haven't a chance; We should have been home a month or more; For the 509th is winning the war." Tibbets was therefore determined create maximum effects after his group had been ridiculed at Tinian Island for not attacking Japan during weeks of preparations on the island, rehearsing the secret nuclear attacks while other B29s were taking took flak trying to bomb Japan into surrender with conventional bombs. He writes in *The Tibbets Story* that regular morning flights of small groups of weather and phototographic survey planes that did not make

significant attacks over possible nuclear target cities, helped to reduce civil defense readiness in the cities, as well as reducing the air defense risks, since Japan was rationing its use of its limited remaining air defense in 1945.

The November 1976 Scientific American anti-civil defense article claimed that civil defense was discredited since: "In the 1960s the US adopted a strategic policy giving top priority to the prevention of nuclear war through deterrence ...", to which Wigner and Broyles responded to this claim in "We heartily disagree" in the July-August 1977 *Journal of Civil Defense:* "How do you deter an attack unless you convince an enemy that you will fight the war that he is starting?"

Dictators often start wars which their people don't need: the Persian war against the Greeks, Hannibal's war against Rome, the Tartar's invasions of Europe, the Turks' invasion of Hungary, the invasions of Napoleon. You have to accept that aggression is not necessarily a completely rational activity! All that counts for deterrence is that it is credible. If you don't prepare to fight with strategic nuclear weapons, then they are just a pointless bluff, a paper tiger as the Chinese put it, not a credible deterrent. Which is precisely what the disarmers want, of course, since nuclear parity, with the shift away from credible nuclear deterrence to incredible foolery, is only one step away from admitting the uselessness of the strategic nuclear stockpile, disarming and surrendering!

UPDATE (10 March 2022): A **commenter on this blog post states**:

Western Trade Pressure on the Soviet Union, An Interdependence Perspective on Sanctions, Springer, 1991, by David W. Hunte, pp 14-15:

Economic Sanctions: Pre-World War II Through Cold War

"In 1925, British Foreign Secretary Austen Chamberlain stated in the League of Nations: ‘The great advantage of economic sanctions, is ... they do not involve the resort to force.’ The commonly held view was that economic sanctions were the perfect weapon to pressure states into compliance without blood being spilt or lives lost. By 1980, however, Adler-Karlsson had reached a different conclusion: economic sanctions as instruments of foreign policy almost never worked. ... . In both Britain and France, the situation was one of choosing the least undesirable alternative."

The reality is that "sanctions work" but not in the way intended. Sanctions against Japan resulted in the surprise attack on Pearl harbor, thus war, escalating into nuclear war against the Japanese cities of Hiroshima and Nagasaki in August 1945. Sanctions against Nazi Germany resulted in invasions to seize wealth, and war. Sanctions against Saddam's Iraq ended in a Gulf War. So much for sanctions being a proved alternative to deterrence.

Just one final thought on Kennedy's experience: apart from putting civil defense "nuclear shelter" signs on public building basements and putting geiger counters, food, water and emergency toilets into them to enable America to take shelter if the chips go down, apart from sending his brother to Nevada test site to watch the test firing of the W54 Davy Crocket battlefield tactical nuclear deterrent weapon in 1962, apart from standing firm on the Cuban blockage in October 1962 (instead of appeasing Khrushchev, and note that the obsolete pile of junk he removed from Turkey, the highly vulnerable liquid-fuelled old Jupiter missiles, were obsolete anyway and due to be replaced by less vulnerable Polaris sub in the Med), and apart from approving the final series of high altitude nuclear tests, Operation Fishbowl,

which revealed the magnetic dipole EMP, Kennedy also rejected the economic trade sanctions against the USSR which could have forced another war like the sanctions of the 1930s:

President John F. Kennedy, "U.S. Grain Dealers to be Allowed to Sell Wheat to Soviet Union and Eastern Europe." U.S. Department of State Bulletin, v49, 1963, p.660-661: "It demonstrates our willingness to relieve food shortages, to reduce tensions, and to improve relations with all countries and it shows that peaceful agreements with the United States which serve the interests of both sides are a far more worthwhile course than a course of isolation and hostility."

ABOVE: **John F. Kennedy's *Why England Slept* manuscript dated 25 May 1940 (CREDIT: JFK LIBRARY); notice the statement above right that his conclusion is that the war was the inevitable result of the slowness of the conversion of the British disarmament policy into a policy of rearmament!** John F. Kennedy's college thesis on the need for deterrence and civil defence to make it credible in the face of enemy threats and aggression (a big stick in the hands of a goliath is useless if the enemy is a David with slingshot that can stun the goliath with a stone to the forehead, allowing victory, so you need some defensive armour to make the big stick a credible deterrent rather than mere bluff that can be easily neutralised by any smaller enemy due to your vulnerabilities), *Why England Slept*, is still worth more than all the sanctions and peaceniks literature ever written, explaining his **often forgotten speech on civil defence as a national necessity for credible deterrence of war, given as United States President to a Joint Session of Congress precisely 21 years later to the day from the completion of his book (speech on 25 May 1961, precisely 21 years to the day after the 25 May 1940 date on his manuscript above):**

"No role in history could be more difficult or more important. We stand for freedom. ... I am here to promote the freedom doctrine. ... the adversaries of freedom ... send arms, agitators, aid, technicians and propaganda to every troubled area. But where fighting is required, it is usually done by others - by guerrillas striking at night, by assassins striking alone - assassins who have taken the lives of four thousand civil officers in the last twelve months in Vietnam alone - by subversives and saboteurs and insurrectionists, who in some cases control whole areas inside of independent nations. ... We stand, as we have always stood from

our earliest beginnings, for the independence and equality of all nations. This nation was born of revolution and raised in freedom. And we do not intend to leave an open road for despotism. ... Military pacts cannot help nations whose social injustice and economic chaos invite insurgency and penetration and subversion. The most skillful counter-guerrilla efforts cannot succeed where the local population is too caught up in its own misery to be concerned about the advance of communism. ...

"One major element of the national security program which this nation has never squarely faced up to is civil defense. This problem arises not from present trends but from national inaction in which most of us have participated. In the past decade we have intermittently considered a variety of programs, but we have never adopted a consistent policy. Public considerations have been largely characterized by apathy, indifference and skepticism ... this deterrent concept assumes rational calculations by rational men. And the history of this planet, and particularly the history of the 20th century, is sufficient to remind us of the possibilities of an irrational attack, a miscalculation, an accidental war, which cannot be either foreseen or deterred. It is on this basis that civil defense can be readily justifiable - as insurance for the civilian population in case of an enemy miscalculation. It is insurance we trust will never be needed - but insurance which we could never forgive ourselves for foregoing in the event of catastrophe. Once the validity of this concept is recognized, there is no point in delaying the initiation of a nation-wide long-range program of identifying present fallout shelter capacity and providing shelter in new and existing structures. Such a program would protect millions of people against the hazards of radioactive fallout in the event of large-scale nuclear attack. Effective performance of the entire program not only requires new legislative authority and more funds, but also sound organizational arrangements. Therefore, under the authority vested in me by Reorganization Plan No. 1 of 1958, I am assigning responsibility for this program to the top civilian authority already responsible for continental defense, the Secretary of Defense ... no insurance is cost-free; and every American citizen and his community must decide for themselves whether this form of survival insurance justifies the expenditure of effort, time and money. For myself, I am convinced that it does."

ABOVE: Hitler propaganda and coercion so called peace offers in October 1939 and March 1940, because he knew that Britain's Secretary of State for Foreign Affairs, Lord Halifax, was keen on trying to negotiate a peace deal with the Nazis rather than face up to a repeat of WWI, particularly after Britain's defeat in France at Dunkirk in the face of the overpowering German Panzer attacks (radio propaganda, aided by plenty of whisky and cigars, from Churchill portrayed this retreat and evacuation from Europe as being a miracle, but although losses were minimised - thanks not to Churchill's planning but to emergency improvised evacuation across the channel using small private boats from England - Hitler won the actual battle and successfully drove the British Expeditionary Force from France). Russia in the 1st Cold War set up the World Peace Council in Moscow to fund and help Western nuclear disarmament movements to try to make its domination of the West possible by removing W79 neutron bombs etc, leaving us without a credible deterrent against Russian invasions. It simultaneously made peace propaganda offers to end war by collaboration with dictatorships, an offer that appealed to many idealists who believed it, as Lord Halifax believed Hitler's repeated peace lies. We can expect Putin to make peace promises as a propaganda tool. If he actually wanted peace he would not have invaded Ukraine.

March 14, 2022 5:04 PM GMT **https://www.reuters.com/world/un-chief-says-prospect-nuclear-conflict-back-within-realm-possibility-over-2022-03-14/**

U.N. chief: prospect of nuclear conflict back 'within realm of possibility' over Ukraine By Humeyra Pamuk

March 14 (Reuters) - United Nations Secretary-General Antonio Guterres on Monday sounded the alarm over Russia raising the alert level [weeks ago] for its nuclear forces after invading Ukraine, describing it as a "bone-chilling development." "The prospect of nuclear conflict, once unthinkable, is now back within the realm of possibility," Guterres told reporters, and repeated his call for an immediate cessation of hostilities. Russia's invasion of Ukraine that began on Feb. 24 has so far sent more than 2.8 million people fleeing across Ukraine's borders and trapped hundreds of thousands in besieged cities while triggering broad Western sanctions on Russia. [Actually, the so-called UN, better called the non-united nations, contributed to the war by its repeated calls for nuclear disarmament, which has had precisely the effect John F. Kennnedy found when he wrote *Why England Slept* from his experience in London with his dad, the American Ambassador to Britain, when deterrence failed due to Nazi propaganda on war devastation and poison gas on cities for disarmament, defeatism, and a Third Reich conquest using a minimal military force.)

https://www.ft.com/content/6cf7229b-1aa7-435e-84d9-e3c7a094350d#post-5a7c0648-f48b-4cfb-a163-95b922713201 **Financial Times, 16 March 2022. Zelensky pleads with Biden for no-fly zone or fighter jets. James Politi in Washington. Ukraine’s president Volodymyr Zelensky pleaded for the US to enforce a no-fly zone or provide fighter jets or other means to fend off Russia’s attack on his country, in a virtual address to members of Congress on Wednesday. Zelensky urged US lawmakers to impose harsher economic sanctions on Moscow ... He called on Americans to remember the attacks on Pearl Harbor and September 2001, saying “our country is experiencing the same thing every day right now”, and showed a video of the missile attacks and shelling destroying Ukrainian cities. ... At the end of his address, Zelensky directly addressed US president Joe Biden in English, saying: “I wish you to be the leader of the world. Being the leader of the world means to be the leader of peace.”** (Loon's "peace" is the nuclear deterrent-lacking world of 1914 or 1939.)

ABOVE: Hiroshima ground zero showing surviving concrete buildings amid the debris from now-obsolete wood frame (with tiled roof) buildings that burned in a firestorm that developed 30 minutes after the bombing, not instantly as claimed in approximately 100% of newspaper and TV fake news propaganda on nuclear weapons for disarmament - **a Los Alamos nuclear weapons jobsworth and coward called Dr Harold Agnew exposed only in SECRET classified documents the exaggerations of nuclear weapons effects on people on modern concrete city buildings in Hiroshima with a "Confetti argument" - see the originally SECRET Los Alamos report LA-14066-H, Tracing the Origins of the W76: 1966-Spring 1973 (U) by Betty L. Perkins**, thereby preventing widespread public understanding of the truth, and so enabling anti-nuclear media dominating anti-civil defence pro-disarmament pro-dictatorship liars to deceive the world about nuclear weapons capabilities just as the 30s poison gas media dominating anti-civil defence pro-disarmament pro-dictatorship liars to deceive the world about the Nazi threat to gas bomb all modern cities, etc. This anti-nuclear disarmament propaganda effort is still covering-up the hard scentific facts on nuclear radiation effects for everything from medicine to nuclear power, such as the **extensive evidence (see the graph below from the still-maintained website of U.S. Government's radium dial painter dos-effects project investigator, the late Dr Robert E. Rowland, 1923-2017)** that there is a **dose-rate threshold for cancer of approximately 100 micro-Sieverts per hour or 10 mR/hour in old units (from an intake of 100 microcuries of radium-226 alpha emitter or its equivalent),** summarised as follows by study leader Dr Robert Rowland in his published 1995 Oral History interview:

"Two of the things that most people haven't realized on the induction of malignancies by radium deposited in a human [are], one, how few there are and, two, the fact that, whether we like it or not, they are the best definition of a threshold relationship that I've

ever come across. ... an initial systemic intake of less than about 75 microcuries of radium that's systemic intake, which is one-fifth of the total intake has never induced a malignancy, either bone sarcoma or carcinoma of the air cells. ... [Radium-226 radiation dose threshold for effects is] 75 microcuries, systemically, which is five times that in terms of oral ingestion, or 75 if you inject it with a needle in the vein. ... if you quote rem, 20,000 [assuming relative biological effectiveness, RBE = 20 for alpha particles, i.e. alpha dose in rem or cSv = 20 x alpha dose in rads or cGy]. ... I mean, I [grew] up with the idea that 600 rad, to the whole body, was lethal. And then I go talking about, "But we've never seen a malignancy under 20,000 rem, or 1,000 rads, of radiation." You know, you don't even get a malignancy, yet you kill someone with 600 rads! ... This population of people we've measured, if we line them up in order of initial systemic intake, how much radium got into the bloodstream, and put them in pecking order — of the 2,400, all of the malignancies occur in the highest 280 cases. The lower 2,100 cases, nothing. All of it occurs right there. ... which is another way of saying, "It sure looks like a threshold relationship." ... As you well know, several years ago, it was proposed that the radium levels in drinking water be changed significantly upward. ... It's one of these mandates of our Congress that have insisted that a certain level was God-given, and we had better not have more than that in our water. ... And, incidentally, you may not be aware, radium in water is causing a big problem, not in drinking, [but] in the oil industry ... When you pump oil, water comes up. That comes from way down, and it's loaded with radium. ... If you own an oil well that has four miles of pipe going down, each one 30 feet long and 3 inches in diameter, when they scale up [with calcium carbonate deposits] you don't throw them [away], you pull them and clean them out. This went on for years, until somebody discovered they contained radium in the scale."

ABOVE: Blast duration effects on cube root scaling are only important at low yields, not high yields, as observed for house damage in Britain, based on actual observations, not faked "theoretical analyses" used for propaganda for anti-nuclear disarmament scare mongering, which is designed to try to discredit civil defense using lies in order for disarmament and surrender to be the "only option" for survival.

The blood of the Ukrainian kids must be partly on the hands of those who permitted the circulation of nuclear deterrent lies to remove Ukaine's nuclear deterrent against Russian aggression. **What a terrible people keep the truth secret, thereby allowing public deceptions by political left-wing thugs for nuclear disarmament to enable dictatorships to launch lethal invasions with effective impunity. Other warhead histories by Betty Perkins include LA-13755-H: *Tracing the Origins of the Modern Primary: 1952-1970 (U),* LA-12950-H: *Why Nougat? (U) Understanding the Events Leading to the Los Alamos Scientific Laboratory's First Full-Scale Underground Test Series and Related Considerations (U),* and LA-12393-H: *The 1959-1961 TA-49 Experiments and Related Considerations (U).*.** Don't expect to ever see **anything like this published on the front page of any Western so-called newspaper or as the lead item in any Western TV "news" show.** They carefully screen out **anything that upsets the nuclear warmongers who don't care about provoking another war through disarmament lies, as they did in the 20s and 30s, because the Western public want to be protected from reality until it breaks through their comfort zone and kicks their ass, as happened to Ukraine after it surrendered its nuclear deterrent for loads of lies on a piece of paper which has now proved no more valuable than worthless paper peace promise which Hitler signed on 30 September '38.**

ABOVE: in 1979, the basic data on yield, weight and configuration of various nuclear devices including data on the primary stages Swan (Redwing-Inca, 15.2 kt W45, 11.6 by 22.8 inches, 105 lb; also tested as the primary stage inside the successful 360 kt Redwing-Mohawk thermonuclear test) and Swallow (Redwing-Kickapoo, 1.49 kt, 8 by 28 inches, 225 lb), and megaton range thermonuclear device Bassoon (Mk41 Redwing-Tewa, 5.01 Mt, 87% fission, 39 by 135.5 inches, 15,735 lb; and in its cleaner form Redwing-Zuni, 3.53 Mt, 15% fission, 39 by 135.5 inches, only weighing 12,158 lb due to replacement of U238 with lead, which - contrary to populist myths - is *not* entirely useless or inert since lead does undergo a beryllium-like (n,2n) reaction for T+D fusion neutrons with energy exceeding 10 MeV, with the (n,2n) lead neutron cross-section reaching 2 barns for 14.1 MeV neutrons), and the use of plastic foams to reflect and channel X-rays for the ablative compression of thermonuclear fusion stages, with tested design results (rated in megatons per metre length of fusion cylindrical stage), was disclosed in report UCRL-4725, *Weapon Development During June, 1956*. This was after having been mistakenly declassified 4 years earlier, on 30 July 1975. Only 56 copies of this secret report were printed, and the whole report was declassified accidentally when only pages 23-29 should have been released. Bassoon worked like the Mike and Castle devices, which were basically Teller 1946 Classic superbomb cylinders of thermonuclear fuel ignited at one end, but sideways compressed by x-ray ablative compression on the cylindrical surface rather than end-on heating through a beryllium shield as Teller has envisioned in 1946, utilizing a relatively low yield fission primary stage to initiate the thermonuclear burn. Howard Agnew told Richard Rhodes (Dark Sun, 1995) that in the 1952 Mike device, a layer of plastic foam was attached to the lead lining on the inside of the casing of weapons to act as "x-ray mirrors", preventing the ablative blow-off of metal into the radiation channel by x-rays. However, **the British**

designer - Brian Taylor - of the first successful 1.8 megaton spherical secondary stage test in 1957 on TV recently reported that their devices used plastic foams filling the entire x-ray radiation channel, in order to allow isotropic (uniform from all directions) ablation of the pusher around the spherical fusion stage, which would be harder to achieve by x-ray mirrors than was the case for the simpler cylindrical geometry of the fusion stage used by Teller in Mike. According to the June 1967 Sandia Corporation's originally secret thermonuclear weapons development history (extract below), the new Los Alamos Maniac I computer's first task in 1952 was to determine "... the flow of radiation pressure along channels between fission and fusion components of the bomb ..."

Rather than the x-rays simultaneously compressing the whole cylinder (which is what Hansen and Morland show in their illustrations, ignoring the time factor), the thermonuclear burning wave - if the x-rays are slowed down by plastic foam filling the radiation channel - propagates along the cylinder beginning at the end nearest the primary stage: by having a sufficient "spark plug" of fissile material in the core (both to irradiate compressed LiD with neutrons, fissioning some of the lithium into tritium, and also to provide heat to initiate fusion in the compressed fusion fuel), a self-sustaining burning wave could be established, so that you could increase the yield simply by making the cylinder longer (the Bassoon was increased up to 25 megatons in the W41, five times the Tewa test yield!). In such a design, the role of plastic foam blocking the radiation channel, is to deliberately *prevent* the rather limited primary stage x-ray energy yield from being diluted excessively by flowing over the vast surface of the secondary stage cylinder, which would reduce the compression and lead to secondary stage fizzle. The whole point of the hydrogen bomb is to get away from the critical mass yield-limiting problem of fission weapons, and you can't do that if there is no way to control the spread of the vital x-ray radiation from a primary stage when you have a very large secondary stage to compress. The diagram below applies to the basic W41, but *note that the neutron shield between the primary and secondary stage is there to prevent pre-initiation of fission in the core spartplug of the secondary, cylindrical stage, but in a very clean weapon like 95% clean, 5% fission Redwing-Navajo, there is no spark plug so the neutron shield is replaced with a neutron channel to allow primary stage neutrons to fission lithium, producing tritium in the secondary stage, prior to its compression*. Furthermore, Bassoon's 15% and 87% fission yield versions showed the effect on both bomb yield and mass of replacing the U238 ablative pusher around the fusion clyinder with lead to make it much cleaner. The results showed that doing this drops the mass from 15,735 to 12,158 lb, while only reducing yield from 5.01 to 3.53 megatons. **Moreover, while you get an area of 520 square miles giving a fallout dose over**

the first 50 hours of 1000 R (survivable indoors with the shielding provided by most city buildings) for the "dirty" version, this drops to only about 150 R for the "cleaner" version, for land equivalent surfaces outdoors. As a result, details of nuclear warhead designs were published in various books and articles. At this point (if not in 1949 with Fuchs, Greenglass and other spies giving Stalin the bomb "for peace"), sensible people realise that "secrecy" markings on documents sooner or later fail to protect you from dictators, so you instead need credible nuclear deterrence and civil defense.

Reagan tells Soviet jokes



Answering FAQs about the Nuclear Test Films



ABOVE: Dr Gregg Spriggs of Lawrence Livermore National Laboratory, who gave **Hans Rosenwinkel (producer and director) a PBS America TV interview recently (in the 2021 TV documentary on the Bravo test, called "Burning Sky", first broadcast on PBS America digital channel in the UK on 26 June 2021 after being broadcast 3 days earlier in the USA; we taped it for personal use but due to copyright cannot upload it to youtube)**, claiming that water spray in most Pacific nuclear tests led to yield underestimates so Bravo would be 22 megatons not 15 megatons, leading - *if correct* - to even greater reduction in the measured effects of nuclear weapons of given megaton yields shown in Glasstone's book: *"They did their best back in the 1950s ... on Bravo they had adjusted the analysis somewhat ... when you do a shot over water, as the shock wave moves out it picks up water and it makes the shock wave heavier, so we think now that the yield of Bravo - and in fact the yield of all of the barge shots that were done in the Pacific - were about 27-50% higher than what was originally reported, so Bravo, instead of being 15 megatons, might actually have been on the order of 22 megatons!"* (We're not updating the Pacific nuclear tests yield data on this blog until we see the reports with hard data on this, because the 1950s yields were also substantiated by radiological yield from fission product and actinide samples in fallout, which doesn't depend on shock wave data or fireball expansion films! However, this claim about H-bomb yields in the Pacific being underestimates is interesting, and Dr Spriggs may well have secret-classified reports hidden from public view, with more data which will eventually be declassified and become available. If indeed the total fireball expansion-derived yields are higher, then the *percentage fission yields* - derived from fallout sample analyses - must be smaller by a similar factor, which would have huge implications for not just nuclear weapons effects but also for constants in the semi-empirical models of nuclear weapon designs for megaton yields!) He has also **put some recently restored films of nuclear test explosions on youtube**. The most interesting, in view of the photo of the "upright" test configuration of the 5 megaton Redwing-Tewa bomb at Bikini in 1956 (see photos at the top of this blog post for a pic of the Mk41 Tewa test prior to testing) **shows the primary stage being ejected vertically upwards out of the fireball and creating a second smaller fireball above the main fireball produced by the main cylindrical secondary stage** (which is heavier and nearer to the ground), **an effect analogous to that seen in the 1962 *Starfish* test** (basically the two stages are exchanging radiation which causes them to recoil apart as the weapon case vaporizes, and the lighter primary stage gains the most velocity, due to straightforward conservation of momentum):

Operation Redwing - Tewa 37369



Operation Redwing - Tewa 37363







ABOVE: **Bravo's 1 kiloton x ray channeled fireball travelling in vacuum pipes towards Station 1200 at 2,286 metres (1.4 miles) distance. Most high quality versions of films and photos showing such interesting weapons effects are still classified because they contain interesting information on the effects which are denied public viewing, along with EMP waveforms showing transit times between fission and primary stage ignitions. Station 1200 at 1.4 miles from Bravo survived 130 psi, despite being designed for just 50 psi from a yield of just 6 megatons. If Dr Gregg Spriggs is correct to claim that Bravo's real yield was 22 megatons (rather than 14.8 megatons), it will mean that a structure designed to survive 50 psi can survive at 1.4 miles from a 22 megaton bomb, which is even more impressive than 15 megatons.**

UPDATE - 6 April 2022:

The roots of the present crisis are covered in General Sir John Hackett, DSO and Bar, MC, LLD, et al., *The Third World War*, Book Club Associates, 1978. Hackett was an Australian born Oxford classics and history scholar, who went into the British Army when Hitler went off the deep end in 1939, being wounded while leading a parachute brigade against the Nazis at Arnhem. He ended up NATO Commander

of the British Army on the Rhine, when he started a political war with the British Government by writing a famous letter in *The Times* complaining that NATO was under resourced and needed strengthening to resist Russia. He survived that by claiming he was wearing his NATO hat, not his British Army hat, when writing the letter (the British Army bans its employees from writing politics in the press, whereas NATO doesn't). After retirement he became Principal of King's College, London, and then wrote *The Third World War* to point out the risk of NATO weakness encouraging Russian aggression, just as he had seen happen with the Nazis in the 1930s, stating in *Authors' Note and Acknowledgements* (p 359):

"Those who argue for the reduction of defence expenditure in the countries of the West .... seem to live in a land of total make-believe ... What they [Russia] have been doing is building up huge armed forces, far greater than what would be necessary, in any conceivable situation, for their own defence, at a cost gravely detrimental to domestic development ... and in a mode essentially *offensive.* ... We have assumed that enough is done to ensure that, when the Soviet machine travels of its own momentum along a path of miscalculation and mischance towards an attack on NATO, the West, at some cost, is able to survive. It is possible, of course, that enough will not be done. The outcome is then likely to be different. ... the free countries of the West would be in no position to withstand political pressure from the USSR, which would enjoy the fruits of a military victory, without having to fight for it."

Hackett and associates outline what they consider the most probable nature of WWIII, pointing out (on page 31) that in 1978 only 35 out of 180 governments in the world were truly democratic, and the remainder relied on dictatorial succession or coup d' etat for changes of leadership. They assume (Appendix 5, p355) that the West has a nuclear inferiority by 4 August 1985 when they assume WWIII breaks out, with 2450 ICBMs, IRBMs and SLBMs on the Russian/Warsaw Pact side, compared to just 1900 available to the West. They assume that Russian assistance to Egypt causes subversion and overthrow of Middle East countries (Saudi Arabia, Iraq, and Kuwait) in 1984, with Saudi's Sunni sect versus Iraq's Shia sect being provoked by insurgency to cause war. Russia also attacks Western assets, ships etc, leading American hawks to propose (p 282): "Why not now go over to the offensive, it was asked, and finish off forever the threat ... East Germany and Poland could be freed and the advance could be pushed forward in the Ukraine as far as the Dnieper. Control of the Ukrainian harvest and of the Dnieper hydro-electric installations would be enough to cripple any further war effort by Soviet Russia. It would be tempting to go on and liberate Georgia and control Baku, but that ... would expose too long a line of Western communications ..." Instead, the Russian Kremlin followed President Truman's doctrine of 6 August 1945 (p 285): "They insisted on an immediate move towards the threat of nuclear action. A single atomic attack on a Western target would be enough to demonstrate their determination. A simultaneous message would be sent to the US proposing the immediate withdrawl of all foreign forces ... It was important to make it absolutely clear to the Americans that this was a single attack to demonstrate what might happen if they refused Soviet demands. It was not to be seen as an immediate prelude to a general nuclear offensive. ... Most views were fairly near the truth so far as a proposal for negotiation was concerned, but few guessed that this would be accompanied by a Hiroshima-type demonstration, or that the time-table would be as narrow and threatening as it turned out to be ... he demanded that the US should send representatives within one week ... failing which further selective strikes would be carried out."

After the explosion, NATO retaliates with a similarly small-scale tit-for-tat nuclear strike, being constrained by escalation fears (a factor which contrary to CND propaganda, was the prime factor in all NATO Cold War plans). Hackett comments on the Cold War conflict between oppressor Russia and its victim Ukraine (p 306): "Soviet policy had always been at pains either to suppress or appease any symptoms of independence of mind on the part of Ukraine [Khrushchev gave Ukraine the Crimea in 1954]. Its enormous contribution to Soviet food supplies, its position in the front line of Soviet territory facing the West, bordering on Poland, Czechoslovakia, Hungary and Romania, and its vast hydro-electric potential, had made it, after Russia proper, the most vital component of the [Soviet] Union."

Hackett argues (p 311) that Marxism only took root among a "group of people accustomed to absolutism", such as those in the Tsar's Russia of 1917 or Ho Chi Minh's Vietnam, and failed elsewhere, unless continuously enforced by a regime of brutality and violence. Put another war, "Marxism" was essentially successful merely because it became a mere public relations symbol or label, used as a handy excuse for excesses by dictators, just as certain religions were likewise used as mere excuses for invasions labelled Crusades or Holy wars in the past. His conclusion (p 327) is that WWIII would end Cold War Russia's role as a Western superpower, leaving China (largely a rival to Russia in the Cold War) to take its place: "After each major war this century, a great empire has melted away. After the 1914-18 war, the defeated Austro-Hungarian empire. After the 1939-45 war, the victorious British empire." The basic problem remains that relatively few countries are completely democratic and free, while many have military power. The cheap-fix of disarmament for this world is beautifully debunked by world history following the nonsense written on pages 101-2 of the 1931 book by Major Victor Lefebure, *Scientific Disarmament* (published by the communist Victor Gollancz's Mundanus Ltd imprint in London, with glowing Introductions by 14 disarmament "experts" including David Lloyd George and H. G. Wells): "The claim that a peacefully disposed country, highly organised for industry, with vast facilities for manufacture of all kinds, can suddenly spring from a condition of disarmament to one of intense armament appears to be untenable." (Hitler disproved him soon after being elected two years later. This book was given a lengthy and laudatory review in *The Observer* on 1 March 1931 by a Major-General Sir F. Maurice!)

Update: 17 April 2022. President Biden is sending further military aid for Ukraine to fight Russia, $800 million including 500 Javelin armour penetrating missiles, two hundred M113 APCs, eleven Mi-17 helicopters, eighteen 155mm howitzers, 40,000 artillery shells, 300 switchblade drones. The problem is that this kind of proxy conventional war can drag on, devastating the country. If you remember the neutron bomb "controversy" from 40 years ago, Reagan's admin argued (1) they'd deter invasions, and (2) if some kind of accidental special military adventure/invasion occurred, then they'd swiftly stop the armour without any collateral blast, fire or fallout damage (1 kiloton enhanced radiation/reduced blast at a few hundred metres doesn't cause any damage apart from a flash of nuclear radiation to stop/deter invasions, UNLIKE conventional weapons which leave the country in ruins and hurt civilians). **According to Sandia's declassified Defense Nuclear Agency *Nuclear Weapons Characteristics Handbook*, pages 13-15: "With the advent of the Korean War in 1950 ... our focus shifted to tactical nuclear weapons. The Mk7 bomb and the Mk9 280mm artillery fired atomic projectile were the first of these weapons. In the early 1950s we started developing nuclear warheads for short-range missiles such as the Honest John and the Corporal ... In 1962, President Kennedy directed that permissive action links (PALs) be incorporated in all NATO deployed weapons to protect against unauthorised use."** Deterrence was lost in the 90s due to lying anti-nuclear propaganda disarmament activists. Without credible nuclear deterrence, we are back to long sieges of cities, where attrition in the face of dwindling food and ammunition determines the outcome, as in the 11 month long siege of Sebastopol in Crimea, from October 1854 to September 1855, or its siege from October 1941 to July 1942 (**during June 1942 alone, Germany reportedly dropped 20,528 tons or 20.5 kilotons**

- more than twice the blast yield of the Hiroshima bomb - on Sebastopol, which of course goes unnoticed by the anti-nuclear propagandarists who don't care deterring conventional war).

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https://www.standard.co.uk/news/world/president-zelensky-putin-russia-ukraine-nuclear-weapons-b994743.html

President Zelensky warns world to prepare for Russian nuclear attack on Ukraine

The Ukraine leader called for more air raid shelters and more anti-radiation medicines

By Sami Quadri, Evening Standard, london

Ukrainian President Volodymyr Zelensky has said the world should be ready for the prospect of Vladimir Putin using nuclear weapons.

Speaking from the country's capital Kyiv, Mr Zelensky voiced his fears the Russian president could also be prepared to use chemical weapons against Ukraine.

The leader called for more air raid shelters and more anti-radiation medicines.

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https://www.dailymail.co.uk/news/article-10726663/Increasingly-desperate-Vladimir-Putin-attack-NATO-base-stop-weapons-getting-Ukraine.html

'Increasingly desperate' Vladimir Putin could attack a NATO base to stop the western weapons that are stalling his invasion from getting to Ukrainian forces, ex-national security chief warns

Putin could strike a NATO base in order to halt the transfer of arms to Ukraine

Former Government security adviser Lord Ricketts made the warning yesterday

Putin may even attack aircraft or convoys headed to Ukraine from NATO, he said

By JESSICA WARREN FOR MAILONLINE

PUBLISHED: 19:00, 17 April 2022

Vladimir Putin could consider striking a NATO base in order to halt the transfer of arms to Ukraine, a former British security chief has warned. Lord Ricketts, the Government's first national security adviser, said yesterday that Mr Putin is becoming 'increasingly desperate to choke off the flow of arms' to Ukraine. He may even do this by attacking aircraft or convoys headed to the country from NATO, Lord Ricketts suggested. ... Ukraine's president, Volodymyr Zelensky said that it is important for Russia not to win any territory in the Donbas region. ... 'We shouldn't wait for the moment when Russia decides to use nuclear weapons ... We must prepare for that,' he said.

This is the place and time to once more debunk Dr Hans A. Bethe's nonsense anti-Reagan address in April 1982 to the American Physical Society, "We are not inferior to the Soviets" (published on pages 90-98 of Bethe's book *The Road from Los Alamos,* Touchstone, 1991). Bethe admits in table 1 of his article that the Russian empire had 2,490 ICBMs, SLBMs and bombers, compared to just 2,030 American delivery systems, and also in his table 2 that the nuclear warheads on these systems amounted to 8,000 equivalent megatons on the Russian side, compared to just 5,600 American. However, he then made the totally false propaganda claim that this vastly superior Russian nuclear force "is cancelled by the lower accuracy of their missiles"! This is totally misleading "chalk versus cheese" propaganda fake news from Bethe, because the American and Russian targetting strategies were different: Russia was targetting soft targets with higher yields that don't require high accuracy, **whereas America was trying to target Russian Kremlin leaders bunkers and Russian nuclear weapons in their very hard missile silos, not civilian targets, with lower yield nuclear warheads that produce less collateral civilian damage and injury, *but that do require high accuracy unlike the Russian targetting strategy*, and in fact America FAILED due to errors in its crater sizes predictions, a fact only discovered at the end of the Cold War! They have been trying to rectify it ever since by "converting" old surface burst tested H-bombs into underground earth-penetrator warheads that can overcome the crater predictions errors by penetrating the ground to tens of metres depth to increase the energy coupling into hardened silos and bunkers, but such converted warheads simply haven't been fully system-proof-tested to work due to the atmospheric test ban treaty!** In addition, Bethe quotes Brezhnev propaganda speeches, claims falsely that neutron bombs aren't needed to *deter* invasions since NATO can somehow use anti-tank missiles against a concentrated tank barriage once it starts (a very dangerous gamble, disproved by numerous surprise attacks in history, and also requiring huge conventional forces mobilized at borders that repeat the 1914 world war disaster), and claims falsely that both sids already have "vast overkill capacity", which is simply not true if in a dangerous crisis *one side evacuates target cities and takes to shelters before taking declaring war or taking provocative actions, as Britain did when evacuating kids from London before declaring war in 1939!*.

Bethe's book *The Road from Los Alamos* also contains other nonsense that make clear that he is double-talking subjective political drivel that ignores the real issues. For example, in his chapter headed "Meaningless Superiority", on page 87 he states: "There can be no victor in a nuclear war." Nuclear weapons were used in WWII and victory was declared in both European and Pacific theatres. Bethe just adds the word "nuclear" to the anti-war drivel of the 1920s and 1930s post-WWI pseudo-pacifists, who would think of gas bombs as a cheap short-cut for disarmament propaganda to close down discussions of victory, in the manner that nuclear weapons are used for this purpose today. But a war ended by a demonstration high altitude EMP effects shot which causes fewer casualties than a conventional bomb is a "nuclear war" that evidently disproves this, and then you get into the problem of what he means by "victor". You don't necessarily engage in a war to achieve the kind of "victory" Bethe sneers at; you fight to survive as a free society. But from the left-wing political angle, all you need to say is that you believe the weapons will be used in enough quantities, on such targets to make the survivors envy the dead, and bob's your uncle: the debate closes in your favour since nobody wants such an argument. However, did Hitler drop his 12,000 tons of deadly tabun nerve agent (or his smaller sarin nerve agent stockpile) in a knockout blow to win World War II, or did he not? Those weapons were found in 1945 when Germany was invaded, and dumped in the Atlantic. The point is, by distributing gas masks to everybody and shelters to keep the liquid droplets off the skin, the gas bomb threat was discredited. The same applies to simple fallout radiation precautions: anything to keep fallout off the skin stops the beta burns that the Marshallese and Japanese fishermen suffered in March 1954, while simple shelters also shield gamma rays fom fallout, which are of relatively low energy for the Russian designs with U238 casings, where

neutron capture produces a lot of low energy gamma rays from Np239 and U237 for the crucial sheltering period of 1-10 days after detonation. Bethe ends his meaningless "Meaningless Superiority" article by declaring on page 89: "Negotiations on arms control must not be linked to 'good behavior' ... We Americans should have learned in Vietnam that we are not the policeman of the world." This is a simply a reversal of the lessons of WWII, it is a retreat to the isolationism of the 1930s, when America followed Britain's stupidity and failed to get involved in actively stopping or credibly deterring Germany and Japan from starting WWII. If anyone wants to draw lessons from the Vietnam war, he should do so **using Ambassador to the Soviet Union Foy D. Kohler's analysis of the megatonnage dropped on Vietnam and its failure to win the war due to simple Vietcong shelters and survivalism which completely repudiates strategic bombing, linked here**.

Regarding nuclear shelters, Bethe attacks them on page 60, where he admits that if nuclear weapons are used on military targets, "then fallout shelters will be very useful", he then irrationally reverses this in the next sentence by saying that since Russian nuclear weapons are targetted on soft targets (countervalue), not hard silos (counerforce), such an attack is "highly unlikely because it is ineffective against an invulnerable missile force." Bethe knows nothing about the true hardness of the Russian shelter system against all kinds of nuclar attacks, counterforce and countervalue. But his argument against shelters, by claiming Russia has superior deterrence in being able to do countervalue attacks, contradicts his own claim in another chapter of his book, where he claims that Russia's superior equivalent megatonage and missiles stockpile is not superior for deterrence, because it has less accurate missiles. Bethe merely redefines the meaning of "superiority" to whatever suits his subjective political agenda. What are we trying to deter? According to Bethe's Russian inferiority argument, we are trying to deter Russia from damaging our nuclear warheads, *which is not a problem because the Russian missiles are inaccurate. But that's not what most people are concerned about, which is deterring Russia from attacking civilians*. In that sense, Russia has superiority, because accuracy is not a problem for hitting targets the size of cities (as compared to missile silos or Trident submarines). Accuracy is then irrevelant. But it is also largely irrelevant in any case, since submarines hidden at sea are hard to hit so any "counterforce" strategy against a nuclear trident of mixed forces (planes, submarines hidden at sea, and silos) is half-baked at best, and **in any case, Russia had not only vast countervalue superiority, but also counterforce superiority, since it turned out that simplistic Glasstone crater size analysis was false and massively exaggerated, so the nuclear weapons targetted on Russian silos wouldn't have done the job Bethe supposed, even ignoring Russian submarines hidden at sea!**.

In yet another deceptive propaganda essay, Bethe's chapter on SDI claims that "to be useful" a Western ABM system or space based defence (Reagan's strategic defence initiative) would have to shoot down "virtually all of the 10,000 or so" Russian weapons! Again, this is Bethe's highly bigoted view of how Russia will use nuclear weapons in WWIII: he thinks they will disarm themselves by firing everything they have to overwhelm a Western ABM or other defence system. This is the 1914 and 1939 "knockout blow" delusion that Kahn debunks. Since they have a protected second strike force, they don't need to do this. The far more likely threat of a rogue missile or limited demonstration attack in the manner of Hiroshima or Starfish Prime, is ignored by Bethe. It isn't ignored by Russia which does have an ABM around Moscow for this reason! Bethe then on page 124 then claims that a high altitude nuclear detonation releasing 1 kev soft X-rays to pump a directed "x-ray laser" (in fact you don't need anything so fancy, since a tube or case around the weapon, with one end open, will function to send out a directed pulse of x-rays, as proved in numerous tests, starting with the x-ray fireball coupled into vacuum tubes in the Bravo test of 1954), is useless because warheads can be protected by "A crushable layer installed under the [missile] skin [which] could prolong and weaken the [x-ray ablative "blow off"] pressure wave ... thereby protecting both the skin an its contents." Again, this is deliberately scientifically vague, because no calculations about the range, yield, cost to the missile in terms of size and

payload increase trade-off, etc., are given. Sure, you can harden missiles by making use of the large take up of energy in deformation beyond the elastic limit, which is how Lord Baker's clever design for the Morrison table shelter worked in WWII (as with car crumple zones, denting absorbs energy very efficiently, allowing a 3mm steel sheet to stop a collapsing house, something you can't achieve cheaply if you you design a shelter not to be dented, the classic delusion of green engineers set to work on shelter design). But you can use the 14 Mev highly penetrating neutrons from a neutron bomb to melt the fissile material in an incoming enemy warhead, causing it to fizzle, ending that threat!

(Reagan's controversial SDI nuclear explosion pumped X-ray laser was first suggested in 1977 by Lawrence Livermore's **George Chapline Jr.** and was tested underground in Nevada in 1978, with the x-ray detector instrument breaking down so no results came. In summer 1979, Chapline held a meeting at Lawrence Livermore lab to design a re-test, where Peter Hagelstein suggested an improvement which led to the successful "Dauphin" sub-20 kt nuclear explosion test of the Excalibur pumped x-ray laser underground Nevada on 14 November 1980. It used laser rods made of doped fogbank like the lowest density x-ray transmitting foams in the W76 warhead, but until it is declassified in full with the test results, it will remain on the sci fi shelves of the library. **Hegelstein has one very vague report online about x-ray laser technology, a data-dump list of possibities and a lot of references, but no illustrations or definite schemes**.)

According to the declassified **American 30 July 1963 "DCI (Director of Central Intelligence) Briefing to the Joint Chiefs of Staff", the Russian nuclear warhead designs up to 1963 below 150 kt all exceeded 600 lb in mass, and adds on page 8 that: "There is no information indicating that the USSR has successfully designed and detonated low yield thermonuclear devices with enhanced radiation and reduced fission or devices with the secondary heavily loaded with oralloy such as the US TUBA device [*Tuba was the secondary stage used in the 773 lb, 18" diameter, 46.6" long higher yield Polaris W47-Y2 missile warhead, tested to yield 1.2 megatons in the Dominic-Harlem test dropped from a B52 to detonate with a yield-to-weight ratio of 3.42 kt/kg, at an altitude of 13,645 feet, 17 miles south of Christmas Island on 12 June 1962*]. In the case of reduced fission devices the chance of collection and analysis of test debris is markedly reduced for low yield tests and thus the absence of debris analysis indicating the detonation of such devices in the 1961-62 test series cannot be considered conclusive negative evidence." The document also states that Kingfish and Bluegill Triple Prime high altitue tests at altitudes of about 100 and 50 km in 1962 were both 200 kt warheads, not 410 kt as previous data suggested. The diagrams from this very important declassified Top Secret nuclear designs document, which plot a graph of Russian versus American warhead test results** (the ratio of yield to mass of bomb, with identified data points for specific Russian and American tested devices **including the cleaner "Ripple II", a hollow rippled fusion second stage design by John H. Nuckolls of Livermore lab, which when tested as 7,139 lb Dominic-Housatonic, yielded 10 megatons with alleged 99.9% clean fusion yield on 30 October 1962, superseding the success of previous secondary stages Bassoon, Cello, Fife, Oboe, Calliope and the spherical Tuba**) and tabulate a comparison, **are of poor quality - hand-drawn not typeset due to the problems of disseminating Top Secret data to printers - but are sufficient to see the key facts (note that this data has NEVER been superseded from the Russian point of view, because this direct data on Russian nuclear weapons from fallout samples ended in 1963 due to the atmospheric nuclear test ban treaty, which moved tests deep underground until they were halted altogether, so since 1963 there has not been fallout analysis data to determine Russian designs):**

Tape-recorded White House Meeting on the Dominic Nuclear Test Series, 5 September 1962 (Meeting on the Dominic Nuclear Test Series, 5 September 1962, in Tape 20, Box MTG, President's Office Files, John F. Kennedy Presidential Library (JFKL), Boston, MA.):

President Kennedy: What about our tests? How would you summarize our tests ... how would they? If they [Russian nuclear warhead designers] were talking about our tests would they dismiss them quite as you dismiss theirs?

U.S. Atomic Energy Commission Chair Dr Glenn Seaborg (Nobel Laureate for discovering plutonium): I think that they would not be able to understand the sophistication of some of the biggest advances we have ...

Unidentified participant: our most advanced idea, namely the Ripple concept, leads to an inherently clean system and maximum efficiency ...

McGeorge Bundy: It may be worth just a moment to explain what that is ... Because that is probably the most important technical development in our own Dominic series.

Carl Kaysen: That's the sort of breakthrough of the Livermore laboratory.

QUOTATION SOURCE: J. Grams, "Ripple: An Investigation of the World's Most Advanced High-Yield Thermonuclear Weapon Design", Journal of Cold War Studies, v23 (2021), issue 2, pp. 133–161.

ABOVE: **Nuckolls 1994 opennet paper OSTI-10173564 (Lawrence Livermore paper UCRL-JC-117385), "Achieving Competitive Excellence in Nuclear Energy, The Threat of Proliferation, The Challenge of Inertial Confinement Fusion" explained the history of how nuclear warhead design improvements suggested isentropic compression of tritium-deuterium capsules (the maths had already been published in 1972 in J. Nuckolls, L. Wood, A. Thiessen, and G. Zimmerman, "Laser Compression of Matter to Super-High Densities: Thermonuclear (CTR) Applications," Nature, p239)**:

"In 1957 I was assigned the task of designing a fusion power plant driven by the explosion of a series of hydrogen bombs in a giant steam-filled hole in granite. Although this approach would eliminate the magnetic confinement system, the scale is very large, and the hydrogen

bomb is initiated by a fission explosive. ... The feasibility of very small fusion explosions follows from the fact that the thermonuclear burn rate is proportional to the density of the fusion fuel, and the fact that fusion fuels can be imploded to at least 1000 times normal density. The inertial confinement time is proportional to the characteristic dimension of the exploding system. Therefore, for a sphere, a thousand-fold increase in the density (and burn rate) makes possible a thousand-fold reduction in the radius ... less than 1% of the pellet needs to be ignited, since the radius of the compressed pellet is six times larger than the range of the 3.5-MeV alpha particle arising from the DT reaction. If (1/6)^3 ~ 0.5% of the pellet mass is heated to ignition, this critical-size hot spot will then initiate a burn wave which ignites the remainder of the pellet. For this pellet, the minimum required ignition energy is about 5x10^3 J. After compression, the ignition is also energetically 'free'." ... Because the fusion energy is so much larger than the minimum energy required for compression and ignition, an ablative implosion (which is typically 10%efficient) may be used to achieve both compression and ignition. However, because the velocity required for ignition (of a milligram) is roughly three times the velocity required to compress 1000-fold, the overall efficiency is reduced to 1%. ... The 14-MeV neutrons may be absorbed in several tens of g/cm2 of lithium rich material. Lithium fission and (n,2n) reactions may then be used to regenerate the tritium consumed by the DT burn. The soft x-rays and hot plasma are readily absorbed in the lithium-rich material. ... To meet these coupling requirements with the as yet unknown driver, I proposed in the late 1950s to adapt a powerful thermonuclear weapon concept invented by Edward Teller in the early 1950s. I proposed to "indirectly drive" the ablative implosion with thermal x-rays generated by rapidly injecting energy from the driver beam into a cavity which has high-Z walls and contains a DT pellet coated with a low-Z ablator. Re-radiation of thermal xrays back and forth across the cavity rapidly reduces temperature gradients, and rapid ablation of the pellet surface by the x-rays generates the required implosion pressures while reducing the rate of growth of fluid instabilities. To prevent excessive thermal losses into the cavity wall due to the adverse scaling of the surface to volume ratio as the cavity is made smaller, I decreased the cavity temperature and the average initial density of the imploding capsule. **In the early 1980s, the U.S. declassified the use of this "indirect-drive" approach in ICF - and the fact that this approach was used in thermonuclear weapons driven by fission explosions.** [Emphasis added] ... A program was conducted by LLNL and LANL to implode ICF capsules in underground nuclear experiments driven by underground nuclear explosions. These experiments have been named 'Halite-Centurion'." (Note that there are good technical reports by Nuckolls with the equations predicting fusion explosion charge efficiency **here** and **here**.)

Grams states that the Ripple designer, Lawrence Radiation Laboratory physicist **John H. Nuckolls**, received authorization from President Kennedy to test the first version of Ripple on 2 July 1962, initially set for 5 days later, 7 July, in the crowded Operation Dominic series (America was trying to test every wild idea it could possibly construct and ship to the Pacific, before signing a cessation of atmospheric tests, and some shots failed to get off the ground in time, most notoriously the Uracca high altitude test which Dr Ogle was desperate to have fired at an altitude of 1,300 km, leading to furious technical arguments between Kennedy, his adviser McGeorge Bundy, and testing organiser Dr Frank H. Shelton, documented bitterly in the three books about the 1962 tests by Dr Shelton, Dr Ogle, and Dr Seaborg, respectively, namely Shelton's *Reflections of a Nuclear Weaponeer,* Ogle's A Return to Testing, and Seaborg's *Kennedy, Khrushchev and the Test Ban*, all giving very different perspectives on the subject - when Dr Shelton finally got Uracca ditched, Dr Ogle was so furious he tried to pull out of making any more Los Alamos EMP measurements in the high altitude Fish Bowl series in retaliation). (Uracca was first designed to be 410 kilotons, then due to NASA's fears a spaceman might get a few rads, Ogle sold out to protests and compromised and accepted 200 kilotons, but the spacemen put their lives ahead of national security so then the yield was lowered still further, until it was practically a waste of time, due to the very high burst altitude and the evident failure to obtain any significant x-ray effects data on MIRVs

for such an unrealistically low yield.) Nuckolls vividly described the overloading of the computer resource time for nuclear device design studies at that hectic testing time, and the desperate use of punched IBM cards for 1-d calculations and only a few 2-d calculations:

"I was the lead nuclear designer and this [Ripple secondary] was my first nuclear test. Not nearly enough time or computer resources were available. Livermore's nuclear design experts believed success was impossible. [John] Foster and [Peter] Moulthrop were notable exceptions. I severely constrained the nuclear design to minimize calculations, to use parts that could be rapidly fabricated, and to avoid or overpower failure modes. Nuclear design, engineering, and fabrication were completed in two months. (Today, years would be required.) Invaluable assistance was provided by my sole assistant, Ron Theissen, a technician on assignment from the Computation Department. Several other designers volunteered to assist. Day and night, Ron and I punched IBM cards as inputs for hundreds of one dimensional calculations. Although the device was an extreme design, enough computing time was available for only a few simple two dimensional calculations."

Five days behind the original schedule, the first 9,162 lb 56.2x123" Ripple on 11 July 1962, a B-52 dropped Ripple as the very last ever air-drop of Operation Dominic at Christmas Island in the Pacific, named shot Pamlico - it yielded 3.85 megatons with a 14,330 ft detonation altitude to avoid local fallout, and was watched by Nuckolls from the beach on Christmas island, where the first British thermonuclear weapons had been tested five years earlier (Seaborg's book *Kennedy, Khrushchev and the Test Ban* explains how the emerging scandal about the fallout contamination of Marshallese in 1950s tests made it difficult to resume testing in the Marshall Islands in 1962, so American testing moved to Christmas Island for Operation Dominic, 1962): "The giant mushroom cloud surged upward and stabilized at an altitude of 80,000 feet. The Soviet spy ship was steaming over the horizon. ... My colleagues were amazed at my beginner's luck and counseled me "quit while you are ahead." But, I resonated with the creative optimism of Lawrence and Teller. I had no fear of failure. Foster's rule was if you don't fail half the time, you aren't trying hard enough. His dynamic spirit inspired Livermore. "You can excel! I want to run so fast anything the Soviets build will be obsolete. ... In August and September [1962], Ron and I worked day and night to design an even more radical nuclear device [Ripple II]. We further optimized the [primary stage x-ray] pulse shape [using fogbank interstage x-ray pulse shaping] to achieve practically isentropic fuel compression [**"if the flow is very gradually compressed (area decreases) and then gradually expanded (area increases), the flow conditions return to their original values. We say that such a process is reversible. From a consideration of the second law of thermodynamics, a reversible flow maintains a constant value of entropy. Engineers call this type of flow an isentropic flow; a combination of the Greek word "iso" (same) and entropy"**]. On October 1, this device was exploded in the "Androscoggin" nuclear test conducted in the Johnston Island area of the Pacific. A small percent of the calculated yield was generated. A fizzle!? Everyone believed I had "snatched defeat from the jaws of victory."

ABOVE: Dr Frank H. Shelton, Dr Bill Ogle, Dr Herman Hoerlin and others at Johnston Island, celebrating the successful firing of the EMP and ABM effects shot 1.4 megaton Starfish Prime at 400 km altitude, with drinks in paper cups half an hour after the midnight detonation, 9 July 1962.

ABOVE: John H. Nuckolls, inventor of the 99.9 percent clean 10 megaton Ripple II H-bomb, based on eliminating the compression of a heavy pusher, and instead using ablative recoil to isentropically compress the fuel itself to higher density than is possible when a heavy pusher is absorbing energy and being compressed itself. The Androscoggin test consisted of a Kinglet primary and Ripple II secondary, 6,647 lb, 128.5x56.2", with a 15–16 megatons predicted yield, but an actual yield of only 63 kilotons. Kennedy received a request on 12 October to retest Ripple II, while Ripple III was tested as Calamity on 27 October 1962, yielding only 800 kt instead of the predicted 3 megatons. **Kennedy authorised the retesting of Nuckoll's Ripple II, which was done with modifications as the Housatonic shot on 30 October 1962, yielding 10 megatons from 7,139 lb, 147.9x56.2", without the use of a lead pusher, with a fusion yield of 99.9%, i.e. 99.9% clean (a vast improvement on the 98% fusion 1961 Russian 50 megatons test),** according to the “Report by Commander Joint Task Force Eight,” 4 June 1964, pp. L-B-5-1–2, as cited by Grams. Grams makes it clear from declassified reports quoting Seaborg clearly stating that the 98% clean 50 megaton Russian test in 1961 and other clean Russian shots used a lead pusher, which was an entirely different process to the clean mechanism of Ripple II.

Dr Nuckolls explains that the origin of the successful clean 10 megaton Ripple II nuclear weapon design was actually the effort to develop peaceful fusion energy (which failed with lasers but worked with a very low yield fission primary stage providing x-rays!) in his paper **"Contributions to the Genesis and Progress of ICF", pages 1-48 of the 2007 book, *Inertial Confinement Nuclear Fusion: A historical Approch by its Pioneers* (Edited by Guillermo Velarde and Natividad Santamarfa)**. Basically, the fusion burn rate is *directly* proportional to the fuel density, which in turn is of course inversely proportional to the cube of its radius. But the inertial confinement time

for fusion to occur is proportional to the radius, so the fusion stage efficiency in a nuclear weapon is the product of the burn rate (i.e., 1/radius^3) and time (i.e., radius), so efficiency ~ radius/(radius^3) ~ 1/radius^2. Therefore, for a given fuel temperature, the total fusion burn, or the efficiency of the fusion stage, is inversely proportional to the square of the compressed radius of the fuel at the time! The radiation loss (cooling by inverse Compton effect) problems that Teller's classic superbombs suffered from can be virtually eliminated by lowering the x-ray energy (temperature) to below 1 KeV, because the radiation losses to the nuclear bomb case are of course proportional to the fourth-power of the radiating temperature:

"I was introduced to Teller's radiation implosion scheme in the summer of 1955 ... As a 24-year-old assistant to Harold Brown, the 26-year-old TN Design Division Leader, I studied nuclear explosives and weapons design code development and use. In 1957, Brown asked me to help evaluate the feasibility of producing commercial electric power by periodically exploding half-megaton yield H-bombs in a one-thousand foot diameter, steam-filled cavity excavated in a mountain. This large-scale ICF scheme was part of Teller's Plowshare program to develop peaceful uses of nuclear explosives. I realized that a few hundred electron volt radiation temperature might suffice to implode and initiate a very small-scale fusion secondary. Radiation losses into a hohlraum wall decrease with more than the fourth power of the radiation temperature. With low radiation temperatures, excessive wall losses can be avoided ... Implosion symmetry is enhanced because the radiant energy absorbed in a thin layer of the high Z walls of the hohlraum is efficiently re-radiated multiple times and has a velocity a thousand times larger than the implosion velocity of a fusion capsule. Energy radiates from hot areas to cooler areas, rapidly equalizing temperatures. Growth rates of fluid instabilities are reduced because kilovolt range thermal radiation from a few hundred eV temperature black body rapidly ablates the unstable interface in low atomic weight materials. ... Distortions and instabilities generated by energy concentration processes located in the driver are effectively decoupled from the spatially separate secondary implosion when the secondary is energized by black body radiation from the driver-heated hohlraum walls. Consequently, radiation coupled drivers and fusion capsules may both be operated near their stability limits to achieve maximum performance. Driving pressures of several hundred megabars and implosion velocities of hundreds of kilometers/second can be generated by ablation with several hundred eV radiation temperatures. At these temperatures, material sound speeds are several hundred kilometers/second, comparable to the implosion velocities required to isentropically compress DT to more than one thousand times liquid density. ... In 1961, my group leader, Peter Moulthrop; nuclear designer Ray Birkett; and I addressed the pusher fluid instability problem by separating the pusher from the ablator ... the fusion energy generated can be 10^4 times larger than the Fermi energy of the compressed DT! The gain can be further increased by igniting a relatively small fraction of the DT mass in a hot spot near the center of spherical convergence. Fusion yields can then be amplified by TN propagation from the hot spot into a much larger mass of DT. ...

"I developed an ablatively driven spherical rocket implosion to compress DT to high densities without use of a pusher. A sustained ablatively driven implosion is made possible by use of a sustained driver input and a suitable ablator. Optimum pulse shapes make possible very high isentropic compression of most of the DT while igniting a central hot spot. The temperature of the hot spot is amplified by adjusting the pulse shape so that a strong shock is generated near zero radius, and by using a hollow target design containing low-density DT gas. ... With near ideal pulse shapes, very high-gain, pusherless, near isentropic, low temperature radiation imploded fusion capsules that ignite propagating bum are feasible. ... Livermore's professional weapons designers regarded my tiny low-cost, high gain ICF target designs as science fiction. We joked about "Nuckolls' Nickel Novels" (referring to my prolific series of classified memos). Without nuclear tests, these radical target designs could not be taken seriously. Fortunately, my efforts were strongly supported by Carl Haussmann, who succeeded Brown as TN Division Leader, and by Foster, who succeeded Brown as Livermore director in early 1960.

(Brown was selected by President Kennedy to lead Department of Defense (DOD) Research and Engineering.) ... Livermore was focusing all possible efforts on responding to high yield Soviet atmospheric nuclear tests (including a 57-megaton explosion). ... In April 1962, the U. S. responded to the Soviet tests by launching an intensive nuclear test series. Livermore's advanced warheads achieved a major success in an "Admiral's test" of the Polaris submarine launched ballistic missile. This Polaris weapons system addressed the first strike instability, by creating a secure second strike nuclear force. ...

"In April 1962, a few months before the scheduled end of the atmospheric test series, I proposed a nuclear test of a radical high-yield TN design so fantastic that my colleagues thought it was an April Fool's-day joke. In this radical design, a high-performance TN secondary was imploded with a highly optimized pulse. Foster dispatched me to Washington to support approval of a nuclear test of my scheme. I was accompanied by Roland Herbst, a theoretical physicist and experienced weapons designer. I briefed AEC Chairman Glenn Seaborg, and my former boss, DOD's R and D leader Harold Brown. President Kennedy approved the nuclear test the last experiment in the test series."

Dr Nuckolls' scientific and political viewpoint was disastrous when he eagerly used his position as Director of LLNL (at the end of the Cold War, when the research budget was drying up!) to try to start a speculative pie-in-the-sky peaceful nuclear fusion energy program (leading to a major argument with U.S. Secretary of Energy Watkins in May 1992 when Watkins visited LLNL and demanded nuclear deterrence against proliferation and nuclear terrorism, not peaceful fusion energy!), but Nuckolls' views on deterrence were always sound and he warned clearly against nuclear disarmament scams for "peace":

"The author [John H. Nuckolls] concludes by warning that nuclear disarmament may eliminate the highly successful deterrent mechanism for avoiding another major world war. In a world made safe for major conventional wars by the apparent "elimination" of nuclear weapons, the leaders in a conventional World War III - involving unimaginable suffering, hatred, terror, and death - would be strongly motivated to introduce nuclear weapons in the crucial decisive battles. Even if diplomacy could "eliminate" nuclear weapons, man's knowledge of nuclear weapons can never be eliminated. The paradox is the attempt to eliminate nuclear weapons may maximize the probability of their use." - John H. Nuckolls, "Strategic defense initiative: critical issues", UCRL-92803, *Conference: 4. international conference on nuclear war, Erice, Sicily, Italy, 19 Aug 1984,* https://www.osti.gov/biblio/5529030-strategic-defense-initiative-critical-issues

Nuckolls and **Lowell Wood** (another LLNL physicist, best known for his secretive work on EMP effects from nuclear explosions and for chairing a controversial EMP commission, which produces reports with the vital technical data we need removed due to secrecy concerns) also wrote an interesting article called "The Development of Nuclear Explosives" (published in the 1988 book *Energy in Physics, War and Peace,* edited by Wood) stating on page 312: "The development of high-yield weapons was motivated strongly by rising concern in the U.S. Government regarding the potentially unstopable character of Soviet land forces, as the nature of the war machine that had broken Nazi power in the 1943-45 period became clearer in post-war analyses. The basic Soviet doctrine of massing forces and breaking through the enemy front, even at very high costs in men and material, came to be seen as very difficult to counter. However, since it involved concentrating a division into a few square kilometers for its effectiveness, 0.1-1 megaton nuclear explosives used as area (blast + thermal) weapons came to be seen as an effective and affordable response by the defense: a single high-yield weapon costing under a million dollars could neutralize an armored division costing several orders of magnitude more."

Ripple warhead designer Nuckolls with Lowell Wood and others had in 1972 published a paper about the new physics involved, in *Nature* vol. 239, pp. 139–142, see the illustration below. In simple terms, what Nuckolls does to the Teller-Ulam thermonuclear secondary stage is analogous to what happened in the evolution of primary fission stages: get rid of the thick, dense tamper/pusher surrounding the fuel, to allow the available implosion energy pulse to compress the fuel, and to do at the correct rate to get "isentropic compression", i.e. keeping the shock energy in mechanical work (without the conversion of implosion shock energy into heat energy, which reduces the component of the energy being used for compression). The rate of delivery of X-rays can be controlled by low density plastic foams used as baffles and for delayed re-radiation of soft x-rays. To design the shape in detail, an iterative scheme is used, where a range of basic guesswork possibilities are all simulated in detail on a computer, and the best results are then picked out and used as the basic templates for another range of designs, but honing-in on the most promising shapes, thicknesses, etc. This process is repeated many times to optimise a final design, before a nuclear test is done to check that it actually works as intended.

The controlled higher compression factor you get without having to also compress an inert, thick dense pusher (you just use a relatively thin, say 1-cm thick beryllium ablator surface shell) allows efficient, isentropic compression, of a hollow lithium deuteride sphere with D + T gas in the centre to act as an initiator, providing neutrons to kickstart the fission of lithium in the lithium deuteride fuel, replacing the Teller-Ulam fissile sparkplug; something only possible due to the much greater compression in Nuckolls design than in the older Teller-Ulam system.

If you think this is questionable and don't want to believe in a 99.9% clean H-bomb, note that *Nature* published this paper suggesting that a laser system could be used, in place of the x-ray pulse from a 10 kiloton fission primary stage that Nuckolls used in all of his 1962 tests, and which is way more powerful than laser pulses! There is also an article, **"Energy Balance in Fusion Hohlraums", in the unclassified Los Alamos *Nuclear Weapons Journal,* issue 2, 2009, pages 6-11, which contains two diagrams side-by-side, comparing the use of laser beams and x-rays, such as from nuclear fission primary stages, for focussed x-ray compression of fusion capsules, including a detailed description of the fogbank x-ray mirror lining needed to focus soft, 0.2 keV, x-rays isotropically on to the fuel capsule, and including x-ray shadowgraphs of implosions showing the shockwaves with and without fogbanks/x-ray mirrors which are composed of "20-mg/cm^3 silica aerogel" - the same issue has a helpful article about the use of fogbank interstage material in W76 warheads:**

"... Fogbank is an essential material in the W76 warhead. During the mid-1990s, Fogbank production ceased ... As time passed, the precise techniques used to manufacture Fogbank were forgotten. ... Los Alamos computer simulations at that time were not sophisticated enough to determine conclusively that an alternate material would function as effectively as Fogbank. ... Despite efforts to ensure the new facility was equivalent to the original one, the resultant equipment and processing methods failed to produce equivalent Fogbank. ... in some cases the current impurity levels were much lower than historical values. Typically, lower impurity levels lead to better product quality. For Fogbank, however, the presence of a specific impurity is essential. ... . Scientists found that modern cleaning processes, used in the manufacture of the feed material, clean it better than the historical processes; the improved cleaning removes an essential chemical. ... The historical Fogbank production process was unknowingly based on this essential chemical being present in the feed material. As a result, only a maximum concentration was established for the chemical and the resulting impurity. Now the chemical is added separately, and the impurity concentration and Fogbank morphology are managed. ... Just as modern scientists unraveled the secrets behind the production of the Japanese katana

[samurai sword], materials scientists managed to remanufacture Fogbank so that modern methods can be used to control its required characteristics. As a result, Fogbank will continue to play its critical role in the refurbished W76 warhead."

ABOVE: the transmission of soft x-rays inside nuclear weapon through the absorbing K-shell electron barrier of aluminium plasma generated by the ablation of an aluminium fusion capsule pusher (aluminium in this example is a plasma at a density of 14 grams/litre and at a temperature of 500,000 K), Figure 6 in the officially (Atomic Weapons Establishment, Aldermaston) approved UK Goverment paper, "Science of nuclear warheads" by Keith O'Nions, Robin Pitman and Clive Marsh, *Nature*, v415, 21 Feb 2002, pp. 853-857: "**Little has been published about nuclear warhead science. Here we set out elements of the programme that will underpin future assessments of the safety and performance of Britain's warheads in compliance with treaty obligations. ... The approach builds upon previous nuclear test experience and seeks to replace the requirements for further empirical test data by developing a deeper theoretical and experimental understanding of the relevant fundamental science. This must then be drawn together and applied to the nuclear warhead system using intensive numerical modelling. ... Lasers and pulsed power machines are able to achieve relevant densities and temperatures and also produce the only source of data on X-radiation flows. ... In the very hot matter of a nuclear warhead, thermal radiation is particularly important. The crucial parameter is the radiative opacity, which quantifies how thermal radiation interacts with matter by absorption, emission and scattering. It is sensitive to the composition, temperature and density of the material and expresses the degree to which a material impedes radiation flow. ... [Figure 6] The subject material is heated indirectly using a foil radiator or hohlraum, and allowed to expand against a plastic tamper. ... Figure 6 describes the techniques used and shows a comparison of an aluminium opacity experiment with the corresponding calculations. ... As well as opacity and radiation flow, laser experiments can be designed to test theoretical models of complex radiation/hydrodynamic phenomena (Fig. 7). ... [Figure 7] Here a laser is used to heat a ... hohlraum, which in turn heats a piece of aluminium (shown in blue). The resulting jet of aluminium penetrates a piece of polystyrene, which is radiographed by an X-ray backlighter also driven by the laser. The results from two numerical codes are shown together with the X-ray record from the**

experiment. Both codes reproduce the main features of the flow but show different development of the jet tip. Analysis of the detail will indicate where the theory and algorithms must be improved."

Our point in emphasising the 99.9% clean (fusion) 10 megaton Ripple II bomb, air dropped successfully in 1962, is to demonstrate that the technology and science *does* exist to make even large nuclear weapons a credible deterrent without any fallout collateral damage. Although the neutron effects from 10 megaton bombs in sea level air are usually severely curtailed by neutron scattering in nitrogen, this can be prevented by using two such devices burst 5-20 seconds apart in time, so that the neutron burst from the second device undergoes hydrodynamic enhancement in the large hemisphere of low-density air behind the shock front created by the first burst, tailored to cover the desired area (the precise time between the two detonations is the control determining the radius of efficient hydrodynamic enhancement of the neutrons from the second detonation). So there are excellent prospects for making the neutron bomb credible as a deterrent against invasions, air burst near borders at an altitude that prevents fallout and blast/thermal collateral damage but deters military field equipment and personnel from invasions.

UPDATE (30 April 2022): **https://www.dailymail.co.uk/news/article-10766541/Ben-Wallace-predicts-Russia-use-parade-9-announce-mass-mobilisation-population.html**:

"Putin 'could declare war on the world's Nazis' on Victory Day (9 May 2022): UK predicts Russia will use parade on 9 May to announce mass mobilisation of reserves for final push in Ukraine to defeat West's support for Kyiv ... Britain's Defence Secretary Ben Wallace has predicted that Putin may instead use the parade to declare war on the world's 'Nazis' and mobilise his reserves ... Earlier this week, Putin vowed to use nuclear weapons against any country that dares to 'interfere' with Russia's war in Ukraine."

A couple of points about this prediction: (1) Russia has at least 2 million reserves, which would boost the total Russian armed forces to 3 million (the 1 million normal Russian military includes a 1 year conscription of personnel aged 18–27); (2) this would be a major step up what Herman Kahn called the "escalation ladder". To give some kind of context to the threat a Russian military of 3,000,000 presents us with, please remember that as we stated earlier in this post (above): "When on 8 December 1991, the presidents of Russia, Belarus, and Ukraine dissolved the USSR, the Soviet military was 3.7 million strong. "**From 1945 to 1948, the Soviet Armed Forces were reduced from about 11.3 million to about 2.8 million men**", while the Soviet Union actually increased in size, as puppet governments were installed across half of Europe, despite the American nuclear weapons monopoly until 1949."

ABOVE: **Russian state TV Channel One's 60 Minutes show reportedly broadcast the missile trajectories Russia could use and the delivery times to hit London, Paris and Berlin (202, 200 and 106 seconds, for nuclear missiles fired from Kaliningrad)**. This is because Russia has been left with the world's largest nuclear stockpile of countervalue (city destroying) low-accuracy missiles but high-yield warheads. Such weapons can also be used for high altitude large area EMP strikes, where missile accuracy is again largely irrelevant as it is for large city targets. Until the **crater exaggerations farce was exposed firmly around 1988**, we had - on paper but not in reality - strategic and tactical *counterforce superiority* due to the fact that our missiles were so much more accurate than Russian ones, we could hit their missile in their silos (provided we attacked first, before the Russian missiles were launched), and we also had tactical nuclear weapons to deter invasions, which was a credible deterrent to Russian aggression. After 1988, however, the Glasstone

and Dolan cratering scam was exposed for what it was, debunking our strategic counterforce deterrent (which was never much good against enemy subs hidden at sea anyway), and then the anti-nuclear "peacemakers" persuaded politicians to disarm our tactical counterforce nuclear weapons, leaving us without a credible deterrent to stop invasions. In the 1962 Cuban missiles crisis, Kennedy had clear nuclear superiority and was able to use that in his TV speech on 22 October 1962 to persuade Khrushchev to back down (he said that a single nuclear missile launched from Cuba, even by accident, against a Western target, would be met by a "full" retalitory nuclear response), but today Kennedy's gunboat diplomacy option has a much higher risk because we have surrendered in the nuclear arms race and Russia is way ahead. And it's nut just Mr Putin. China and North Korea have tested thermonuclear weapons and **North Korea's Leader Kim Jong Un recently stated in Pyongyang that it would use nuclear deterrence against "escalating nuclear threats from hostile forces"**. In other words, the dictatorships are now using nuclear deterrence against us to prevent our interventions for peace, just as Hitler did when he built the Luftwaffe: "Margarita Simonyan, editor of state broadcaster RT and one of the Kremlin's highest-profile mouthpieces, declared on TV last night that the idea of Putin pressing the red button is 'more probable' than the idea that he will allow Russia to lose the war. 'Either we lose in Ukraine,' she said, 'or the Third World War starts. I think World War Three is more realistic, knowing us, knowing our leader'." - **https://www.dailymail.co.uk/news/article-10762143/Ukraine-war-Russian-state-TV-says-nuclear-strike-probable-losing.html**

"Alexander's career was piracy pure and simple, nothing but an orgy of power and plunder, made romantic by the character of the hero. There was no rational purpose in it, and the moment he died his generals and governors attacked one another. The cruelty of those times is incredible. When Rome finally conquered Greece, Paulus Aemilius was told by the Roman Senate to reward his soldiers for their toil by "giving" them the old kingdom of Epirus. They sacked 70 cities and carried off 150,000 inhabitants as slaves. How many they killed I know not; but in Etolia they killed all the senators, 550 in number. Brutus was "the noblest Roman of them all," but to reanimate his soldiers on the eve of Philippi he similarly promises to give them the cities of Sparta and Thessalonica to ravage, if they win the fight. ... the intensely sharp preparation for war by the nations is the real war, permanent, unceasing ... the battles are only a sort of public verification of the mastery gained during the "peace"-interval. ... Nations, General Lea says, are never stationary - they must necessarily expand or shrink, according to their vitality or decrepitude. Japan now is culminating; and by the fatal law in question it is impossible that her statesmen should not long since have entered, with extraordinary foresight, upon a vast policy of conquest - the game in which the first moves were her wars with China and Russia and her treaty with England, and of which the final objective is the capture of the Philippines, the Hawaiian Islands, Alaska, and whole of our Coast west of the Sierra passes. This will give Japan what her ineluctable vocation as a state absolutely forces her to claim, the possession of the entire Pacific Ocean; and to oppose these deep designs we Americans have, according to our author, nothing but our conceit, our ignorance, our commercialism, our corruption, and our feminism. General Lea makes a minute technical comparison of the military strength which we at present could oppose to the strength of Japan, and concludes that the Islands, Alaska, Oregon and Southern California, would fall almost without resistance, that San Francisco must surrender in a fortnight to a Japanese investment, that in three or four months the war would be over and our republic, unable to regain what it had heedlessly neglected to protect sufficiently, would then "disintegrate," until perhaps some Ceasar should arise to weld us again into a nation." - William James, *The Moral Equivalent of War,* speech delivered at Stanford University in 1906.

UPDATE: **https://www.dailymail.co.uk/news/article-10774235/Ukraine-war-Russian-state-media-threatens-UK-underwater-nuke.html**: "Russia's chief propagandist threatens to 'plunge Britain into the depths of the sea' with underwater Poseidon nuke that would

trigger a 1,600ft radioactive tidal wave and wipe the UK off the map. Dmitry Kiselyov, known as 'Putin's mouthpiece', threatened the UK with Poseidon underwater nuclear bomb. By CHRIS PLEASANCE and WILL STEWART FOR MAILONLINE. PUBLISHED: 08:36, 2 May 2022 | UPDATED: 13:21, 2 May 2022. Dmitry Kiselyov, a man often known as 'Putin's mouthpiece', used his Sunday night show to call for attacks on Britain with a Poseidon underwater drone that he said would trigger a 1,600ft radioactive tidal wave and 'plunge Britain to the depths of the ocean.' The drone 'has capacity for a warhead of up to 100 megatons', Kiselyov claimed - several thousand times the strength of the bomb dropped on Hiroshima - which would 'raise a giant wave, a tsunami, up to 1,640ft high' - enough to reach halfway up Scafell Pike, the tallest point in England. Speaking against a background graphic showing the UK being erased from the world map, Kiselyov added: 'This tidal wave is also a carrier of extremely high doses of radiation. Surging over Britain, it will turn whatever is left of them into radioactive desert, unusable for anything. How do you like this prospect?'"

This exaggeration of nuclear effects is debunked by the **table of nuclear test water waves data declassified in Dolan's Capabilities of Nuclear Weapons, DNA-EM-1, Table 2-9, Measured Water Wave Data from Nuclear Tests (linked here): the biggest water waves are generated by the deepest scaled depth of burst, e.g. the 32 kiloton Wigwam test in the Pacific detonated at 2,000 feet depth in 15,000 ft of water, which gave a peak water wave height of 118 feet at 2,000 feet range (the wave height scales up in proportion to the square-root of bomb energy yield, and decreases inversely with increasing distance from surface zero). This height will increase by a factor of 56 when you increase yield from 32 kilotons to 100 megatons, so the wave height is 6,600 feet at 2,000 feet from surface zero. The problem now is that (1) Scafell Pike is 15 miles or 80 kft from the Irish Sea (the Ravenglass Estuary, appropriately the most alpha particle and 59 keV low energy gamma active place in Britain, due to Am-241 in the mud from Sellafield, amounting to nanocuries per gram of dried mud), a range which would reduce the wave height to just 6,600*(2/80) = 165 feet, and (2) the Irish Sea is only 1,000 feet deep at most! If detonated just off Ravenglass Estuary, you wouldn't get any tidal wave because there would not be the depth of water required; if you detonated it as the deepest part of the Irish Sea, which is 1,000 feet deep, the horizontal target range would increase, reducing the wave height at Scafell Pike to below the 165 feet we just found, and you'd get a further reduction because the scaled depth of burst for 100 megatons in 1,000 ft of water would make it a shallower burst, reducing the fraction of the yield that is coupled into the water as water waves! This is before calculating the attenuation and breaking of a water wave when it runs far inland and up a mountainside!**

There is now detailed published data on the Russian underwater nuclear tests: see Vice Admiral E. A. Shitikov's paper, *Testing ships at the Novaya Zemlya test site* (see illustrations of the ship set ups for the 1955 and 1957 underwater tests, below): "On Novaya Zemlya, three large-scale full-scale experiments were carried out to study the effect of the damaging factors of an atomic explosion on ships. ... First experience, September 21, 1955 ... to test the atomic charge for a 533 mm torpedo, to assess the impact of an underwater nuclear explosion on ships, and to obtain experimental data to develop the theory of an underwater nuclear explosion ... in Chernaya Bay at the Novaya Zemlya test site, September 21, 1955, power 3.5 Kt, depth 12 m. In the center of the battlefield was a small minesweeper T-393 project 253l, from which a torpedo with a charge was lowered on a cable to a depth of 12 meters. This operation was led by Lieutenant Commander E.L. Peshkur. Target ships were installed at six radii from 300 to 3000 meters. Surface ships stood side and bow to the center of the explosion, submarines - in the surface and underwater position at periscope depth. ... S-19 - due to the fact that the cork on the torpedo tube was knocked out (in accordance with the test program, the front cover was open) , about 15 tons of water entered the first compartment (the damage was repaired by personnel in two days). ... the sinking radii amounted to 300-400 meters, significant damage to light surface ships occurred from a shock wave at a distance of 500-600 meters. Damage to the superstructures of light surface ships from

an air shock wave - at a distance of 700-800 meters. Insignificant damage - at a distance of 1200-1300 meters. ... Immediately after testing B.V. Zamyshlyaev promptly carried out a study in which, in particular, he showed that when the same charge is buried by 70 meters, instead of 12 in the experiment, the effect increases by about one and a half times (in deep water)." There is a lot more to follow, but it is probably best organised into a book rather than blogged about...

ABOVE (update on 13 May 2022): 100% clean H-bomb design (cartoon style sketch, not design blueprint). The basic ideas are illustrated in a previous blog post from 2016, **linked here, which describes also the use of von Neumann-Fuchs invention (28 May 1946 patent "Method and apparatus for releasing nuclear energy"of a beryllium oxide ablator as the compressive mechanism in the wall of a fusion capsule. It's clear that the use of plastic and various ablative fusion stage capsule walls underwent a lot of evolution even in the 1950s. That 2016 blog post also gives the references to Teller's idea of magnetic compression of the secondary stage in nuclear weapons, and John S. Foster's work on magnetic flux compression conventional systems to try to power that (however, as we explain, a small nuclear primary stage might be the only way to get it to go!).** Another application of such technology is Project orion, **a nuclear impulsive drive that is actually practical, tested technology for space exploration which Joseph Friedlander has summarised from blog posts here on The Next Big Future (note that the accidental declassification of the secrets of plastic foam filling the radiation channel of the Mk41 Basoon nuclear device - contrary to its use as a radiation mirror to**

delay outer case metal ablation in earlier "sausage" devices tested at operations Ivy and Castle, and the Swift, Swallow and Swan primary stage tests in secret UCRL 4725, dated June 1956, *originated from the incorrect implementation of a decision to declassify only a 6-pages section in UCRL-4725 about nuclear explosives for propulsion of nuclear rockets for space exploration!*).

ABOVE: Zeldovich and Sakharov's January 14, 1954 report, *On the use of the product for the purpose of compressing the superproduct RDS-6s* which suggested using x-rays reflected by a suitably shaped radiation case on to a spherical fusion secondary stage (a simplified Teller "Alarm Clock", with fissile material in the centre to release neutrons when compressed, lithium deuteride around it which would be hit by neutrons from the fissile material when compressed to fission lithium to yield tritium, an outer shell of uranium-238 as a "pusher" and final fission stage since the 14 MeV neutrons from D+T fusion can fission U-238 efficiently). However, Yuri Trutnev improved this design by placing light material such as beryllium oxide (used as the D+T compressor in the Fuchs-von Neumann superbomb patent) or indeed any light elements (such as the carbon and oxygen in plastics), around the the lithium deuteride. Photo shows President Putin meeting the designer of later successful Russian devices, Yuri Trutnev (then 90), on 15 November 2017. Trutnev says that the **22 November 1955 successful Russian 1.6 megaton thermonuclear test** went to Zeldovich's head and he later had a run of three failed bomb designs in a row, before Trutnev was permitted to test his own new design ion 23 February 1958 in the arctic, with great success (860 kilotons air burst at 3 km altitude); the Russians at this time started testing cylindrical secondary stages in an effort to make warheads more compact for ICBMs and SLBMs. Photos of the first AWRE British single warhead for a Polaris SLBM show it to have a *tapering secondary stage* (an innovation first revealed by Howard Morland in 1979, *see illustration below*, which also highlights the problem that Los Alamos expert Vernon Kendrick told Morland at Los Alamos in November 1978 that modern warheads "don't use spark plugs [which Kendrick pointed out to be spheres of plutonium throughout the secondary, a 1960s development] anymore" because the fissile oralloy pusher does the job of releasing neutrons to fission lithium into tritium, formerly done by spark plugs, but Morland *still included* a 1950's style cylindrical spark plug in his diagram of a modern 300 kt MIRV warhead and failed to show the tapering of the outercase in line with the tapering of the secondary), whereas photos of otherwise very similar Russian SLBM warheads first deployed in 1978 show *no tapering of the secondary stage cylinder*. Russia adopted cylindrical secondary stages in place of spherical secondaries, to reduce the diameter of thermonuclear warhead to fit missiles *because it was using x-ray mirroring by the outer casing* which makes the weapon

bulkier than the American designs; whereas America after 1956 filled the radiation channel with a baffle of low density plastic foam instead of using case mirroring, and so went in exactly the opposite direction to the Russians (America went from cylindrical to spherical secondaries for smaller thermonuclear warheads, whereas Russia did the reverse because it was still using the outer casing as an x-ray mirror and needed more space for the mirroring geometry). Putin is seen presenting Trutnev with the Order of Merit to the Fatherland, First Class.

Update (16 May 2022): **https://www.politico.com/news/magazine/2022/05/16/scenarios-putin-nukes-00032505**: By GREGG HERKEN, AVNER COHEN and GEORGE M. MOORE, 05/16/2022 12:00 PM EDT. "Scenario 1: Remote atmospheric test. Least provocative would be Putin's resumption of above-ground nuclear testing — by detonating a low-yield nuclear warhead high ... Scenario 2: Atmospheric detonation above Ukraine. A more provocative demonstration would be an ultra-high-altitude explosion of a more powerful weapon over Ukraine itself. In a 1962 test, the U.S. detonated a 1.4-megaton H-bomb in the mid-Pacific, 250 miles above the Earth. The resulting electromagnetic pulse unexpectedly knocked out streetlights and disrupted telephone service in Hawaii... Scenario 3: Ground explosion in Ukraine. Most dangerous — and, for that reason, perhaps least likely — would be using a tactical nuclear weapon to achieve a concrete military objective such as disrupting the delivery of weapons to Ukrainians... In May 1945, weeks before the successful test of the first atomic bomb in New Mexico, former President Harry Truman's advisers considered, briefly, the option of a harmless but spectacular demonstration of the revolutionary new weapon as an alternative to its military use, in hopes of compelling Japan to surrender. For practical reasons — there were too few bombs in the U.S. nuclear arsenal, and some feared a dud — the demonstration option was never presented to Truman. But the warning shot idea would surface again and be taken more seriously. During the 1961 Berlin crisis, former President John Kennedy was presented with the option of firing a nuclear-tipped missile at Novaya Zemlya to show American resolve. Israel has also considered a nuclear demonstration; prior to the Six-Day War, in May 1967, Shimon Peres proposed detonating a nuclear device over the Sinai desert to head off the conflict. Six years later, the Israelis again briefly entertained the notion of a high-altitude nuclear warning shot to force an end to 1973's Yom Kippur War. In 1981, with the Cold War again heating up, Secretary of State Alexander Haig — a former NATO supreme allied commander — let slip that "there are contingency plans in the NATO doctrine to fire a nuclear weapon for demonstrative purposes..." regardless of what Putin decides, engaging Russian forces in direct combat should only be a last resort."

UPDATE (24 May 2022) on yield of Bravo nuclear test: it was mentioned (above) that nuclear effects researcher Dr Gregory Spriggs of Lawrence Livermore National Laboratory, who has been scanning by computer and re-analyzing old films of nuclear test fireballs, went on TV last year (during a documentary about the Bravo test) to argue that due to water entrainment by the fireball affecting the fireball

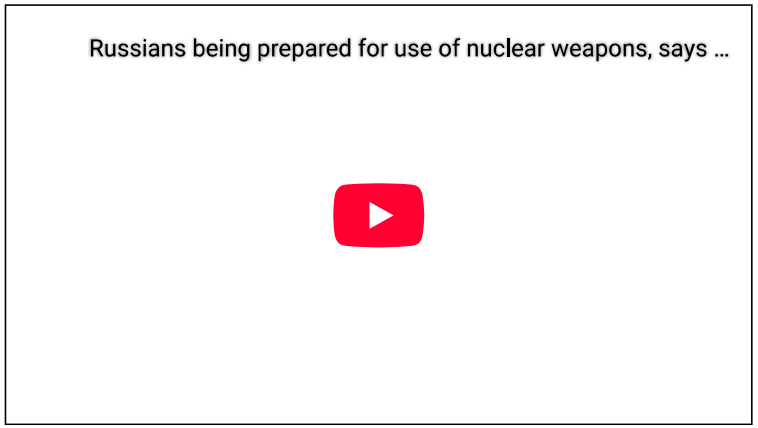
expansion rate, its total yield may have been 22 megatons, not 15 megatons as extrapolated from fireballs over land in Nevada. There are some LLNL reports now available, giving some of the basic data on fireball expansion rates and blast arrival times, that backs up what he said (though for other Pacific tests like Zuni and Dakota, not Bravo - note that I would love to see all the fireball films of Bravo in high definition taken from surface level, rather than aircraft above the clouds, since the rather grainy declassified ones so far available show that normal clouds obscured most of the fireball and its thermal pulse at the surface and that you can also see a secondary fireball running down the diagnostic x-ray vacuum pipes!). **I'm particularly interested in this because I did an analysis of the G. I. Taylor fireball expansion formula (on vixra) giving analytical - rather than taylor's shoddy numerical integration ("cheating" according to maths professor!) proof of the correct formula (Taylor didn't even get his numerical integration right, making errors in his derivation; so much for the wonders of his so-called brilliant mathematicial brain!).** The new LLNL papers are by Kelly M. Cook, *Shockwave Arrival Times from Operation Redwing and Operation Upshot-Knothole,* LLNL-TR-814172, which in table 1 shows that Redwing-Zuni whose fireball was partly over an island in the south of Bikini Atoll but also extended over the sorrounding lagoon water to the north and ocan to the south, had an entrainment coefficient of 1.075. The value is 1 for no entrainment like the Nevada Climax air burst, and the yield is proportional to the cube of the coefficient, i.e. 1.075^3 = 1.242, so megaton range tests over ocean would have a fireball yield at least 24% higher (or more than 24% if the area covered by highest overpressures had a larger ratio of water area to land area). Secondly, a paper by Adele Myers, *Water Entrainment in Nuclear Detonations*, LLNL-TR-758735 (extracts below) shows how a funnel of water enters the surface burst fireball in a comparable way to the funnel of water thrown up by the Baker underwater test as also shown below, *thus cooling the top portion of the fireball (which as Stanbury pointed out in his paper cited above is the only part that most city windows can see;* relevant to coastal cities or cities around large river estuaries). She also gives graphs of relevant data and notes that this effect has a 100 kiloton yield threshold. Very interesting!

ABOVE: **Hurricane 25 kt nuclear test at 2.7 m depth inside ship moored in water just 12.2 m deep at Monte Bello had severe fireball cooling by water funnel; its thermal flash yield was only about 1.4%. Fires were started by bits of the ship in very dry vegetation on nearby island, NOT by thermal flash! Also, despite lying from prime Minister Churchill about this test causing a large "tidal" wave, it didn't as the water was too shallow and there was no water innundation to the WWII Anderson shelters on the beach of the island nearest the test! (Churchill was the only person to have been in the Cabinet of the country declaring every single World War in human history, and yet he still failed to ensure the enemy was deterred, despite publically arguing for overwhelming superiorty ahead of each war and also being supposedly a supreme orator and public relations genius according to the similarly deluded mass media and politically correct "historians"). It would be great if this data from a 25 kt near surface nuclear test were used to improve models of water entrainment in fireballs. It seems that the "100 kt limit" for water entrainment is misleading because all it signifies is that at yields below 100 kt you don't find a "water line" in fireball photos since the water/soil is ejected into the fireball so quickly that it cools down the *entire* fireball (not just the top section where the funnel sprays out horizontally) as seen in the Hurricane test. Similar cooling in surface bursts, caused by crater ejecta entering the fireball very quickly, accounts for the fact that thermal yields in surface bursts are lower than in air bursts. Just in case you are wondering if Russia is aware that clouds etc attenuate thermal radiation, they are; see photos below of the shielding of their first thermonuclear weapon test fireballs by clouds:**

ABOVE: clearly some of these RUSSIAN published fireball photos of USSR tests are carelessly switched over and wrongly labelled, e.g. the 400 kt 1953 and 1.6 Mt 1955 tests are a little similar, and easily muddled up by officials in the photo archives. It will be left as an exercise for the reader to sort them properly! (There are so many similar nuclear test photos of fireballs and mushroom clouds that you get nuclear brain paralysis if you look at too many!) .... But it should be noted that confusions like this also led to errors in Dr Frank H. Shelton's *Reflections of a Nuclear Weaponeer* (2nd ed, 1990; it is identified by extra pages inserted in places with a letter after the page number), for example he reprints the same photo of 1953 shot Grable twice, once labelled as Grable, and later in the chapter on Operation Plumbbob, labelled as 1957 Priscilla! (Contrary to Dr Cary Sublette's false assertions, sorting Grable from Priscilla photos is

very easily identifiable since there was NO SMOKE SCREEN in the Priscilla test, see photo of Grable with black-and-white smoke screen clouds BELOW):

"The U.S. press, like the U.S. government, is a corrupt and troubled institution. Corrupt not so much in the sense that it accepts bribes but in a systemic sense. It fails to do what it claims to do, what it should do, and what society expects it to do. The news media and the government are entwined in a vicious circle of mutual manipulation, mythmaking, and self-interest. Journalists need crises to dramatize news, and government officials need to appear to be responding to crises. Too often, the crises are not really crises but joint fabrications. The two institutions have become so ensnared in a symbiotic web of lies that the news media are unable to tell the public what is true and the government is unable to govern effectively." - https://hbr.org/1995/05/why-the-news-is-not-the-truth



ABOVE: **Ukraine's President Zelensky explaining to John Simpson how his call for Putin to be stopped from starting WWIII has been perverted by US media liars who love Putin, and how Putin is preparing Russia for nuclear war (although he has not yet completely prepared; Putin probably requires collaboration with China, North Korea, Iran et al. to defeat the West in WWIII, and fortunately they are not yet ready to go that far according to Zelensky)**. As a step forward for peace and humanity, we've set up **twitter.com/nukegate** to fight US warmongers! The current world situation is akin to a repeat of the 1930s, with the West causing war NOT by "appeasement" (the scapegoat lie of the pseudo "historians", regardless of whether they are "for" or "against" appeasement, a total irrelevance and red-herring) but by *DISARMAMENT OF THE MOST VITAL DETERRENT CAPABILITIES WE HAD IN THE NAME OF PSEUDO-PEACE DUE TO WEAPONS EFFECTS LIARS BEING ALLOWED TO GO UNOPPOSED IN THEIR SCARE MONGERING BS FOR YEARS, TO REDUCE THE CREDIBILITY OF DETERRENCE, AND THUS TO CAUSE ANOTHER WORLD WAR,* as we can see from the following quotation from Marshall of the Royal Air Force Sir John Slessor, GCB, DSO, MC, *The Central Blue: Recollections and Reflections* (Cassell, London, 1956, page numbers of quotes are given in [square brackets]):

"[p54:] The aeroplane and the bomb enabled us for the first time to enforce submission upon people without killing them. ... [p145:] Where, therefore, blame is due, I must accept my share of it. ... my theme in this chapter can perhaps best be summarized in Sir Winston

Churchill's words, 'no foreign policy can have validity if there is no adequate force behind it...' [Slessor is quoting Churchill, *Gathering Storm,* 4th ed, p337] ... The climax of misjudgement ... was the surrender at Munich in September 1938. ... Sir Winston Churchill remains convinced that it would have been better, in all the circumstances at the time, to fight Hitler in 1938 [*note that the 1938 annexation of Sudetenland including Bohemia gave the Nazis the Joachimsthal uranium mine and many other vital war minerals and heavy industries for munitions production, enabling not just Nazi nuclear research but also conventional weapons production which helped sustain the Nazis in WWII, so the 30 September 1938 surrender to Nazi aggression in Sudetenland by Britain was not "just" about a "few Jews in a faraway land" being murdered in cold blood, or whatever Chamberlain claimed, but it was doing the OPPOSITE of "buying time for BRITISH disarmament"; Chamberlain was knowledgably and dishonestly NOT MERELY BUYING TIME FOR ENEMY REARMAMENT (he rearmed Britain more slowly than the Nazis), but he was also PROVIDING RESOURCES FOR NAZI REARMAMENT, a fact omitted in scam "history" books praising the fascist, anti-libertarian, Nazi collaborator and traitor Chamberlain and his toady pals in the British press*] ... He himself has written in his book of the overriding influence of the hatred of war in the hearts of the Democracies, and of our national unwillingness to provide the force to back our policy. ...

[p148:] [French army commander at the outbreak of WWII, General Maurice] Gamelin was a likable person, a courtly and confident old soldier; but I thought him then [*at the September 1938 meeting between Gamelin and Slessor in London, due to the Munich crisis*] as remote from reality as he afterwards proved ... At this meeting, he said he would like to attack [Hitler] on land at once, but that the French were very interested in avoiding air attack, and wanted some days to get their Air Raid Precaution [ARP] arrangements under way (actually they had no ARP worthy of the name). ... He thought that heavy air attacks on England would be difficult - it was possible, but he did not regard it as very important. ... No one can say what would have happened if war had come in September 1938. The real key to the situation was not Poland, as Gamelin thought, but Russia. ... If Russia had intervened loyally and wholeheartedly against Hitler, the whole history of the past fifteen years would have been entirely different. ... [p150:] One fact which it is essential for anyone to realise who wishes to understand ... is that *the war of 1939-1945 was the first air war*. In 1914 to 1918 the Air had been in its too early infancy to have any very significant effect. ... we really did not know anything about air warfare on a major scale. ... [p151:] Anyway, in those years immediately before the war the possibility of what was referred to as the 'knock-out blow' bore heavily on the minds of the Air Staff. We were faced with a potential enemy who could bring against us something between 1,200 and 1,500 first-line bombers [*with a combined blast and incendiary effects power in a single air raid, when correcting for correct nuclear blast and thermal devastation area scaling laws even ignoring the possibility of gas bombing, equal to a typical MIRVed nuclear missile today*]. ... There is, of course, always a tendency, which should sometimes be discounted, for Military Staffs to over-insure and assume the worst case. But it is difficult to blame the Air Staff for assuming that we *might* find the whole air-power of Germany directed against this country very early in a war. That was not impossible ... The Joint Planning Committee, in a comprehensive review of the air defence problem in late 1936, had estimated that we might have to endure prolonged attack on the scale of 400 tons a day - and that scale increased with the growth of the German striking force. ..."

"[p152:] In a minute to the Secretary of State in April 1938, the C.A.S. [Chief of the Air Staff] wrote- 'I feel strongly that the time for mincing words is past and that the Air Staff should state their view of the situation plainly. Their view is that unless the Cabinet are prepared to incur at the very least the full expenditure required for Scheme L and possibly more, we must accept a position of permanent inferiority to Germany in the air. ... in the event of war, our financial and economic strength, which the present financial limitations are designed to secure, will be of no use because we shall not survive the knock-out blow'."

"[pp.160-1:] Looking back at it now in the atmosphere of 1953, it is almost impossible to believe the extent to which financial considerations were allowed to exert such an influence in bringling us to the very lip of disaster in the face of the Nazi menace, in the years immediately preceding Hitler's war. Every undergraduate knows that a sound economic situation is an essential basis of military strength; but that principle was carried to ludicrous extremes under Mr Chamberlain's Government. I remember one of the Chiefs of Staff saying in this connexion that, as far as he could see, a certain Cabinet Minister was primarily concerned to ensure that we had enough money left to pay the indemnity after losing the war; naughty, no doubt, but that is uncommonly like what it seemed to us in those days. ... Even in the full knowledge of facts such as those I have just described, the Government continued to rule early in 1938 that the three fighting Services between them should not be allowed to spend more than about £1600 millions over the five years 1937 to 1941 - an average of little over £300 millions a year *for all three Services;* and this eighteen months after the Prime Minister [Chamberlain], as Chancellor of the Exchequer, had confirmed that he knew the Germans were spending £1000 millions a year on warlike preparations, a figure which by now, of course, was being greatly exceeded."

"[p163:] The parity idea first became theoretically the basis of Government policy in 1923 at the inception of the old 52 squadrons programme, which followed the post-war period when Britain virtually disarmed herself in the air. ... [p165:] Either we were dealing with Hitler - a mad dog out for blood - in which case ... there should have been no question of parity, or anything else but to outbuild him and kill him, regardless of any other consideration; it would have been cheap at the price. Or we were dealing with a German Government ... We should have recognised what we were up against when Austria was swallowed up - at the latest. ... we did not really get down to arming ourselves on the necessary scale and tempo until after the fall of France in 1940. ..."

"[pp.169-170:] So a time comes, when war appears really imminent, when the 'shop-window' policy [*e.g., lying propaganda fed from the prime minister to the editor of the Times to print rubbish on the front page like, a single gas bombing raid or nuclear firecracket can wipe out a city so we don't need to spend serious money on deterrence of yet another world war*] must go by the board. This time, in our view, was overdue when Hitler absorbed Austria. On the morning when the German columns were moving on Vienna (March 12, 1938), I sent a minute to the C.A.S. ... 'You may think it wise to suggest to the Secretary of State that ... we should now base our arrangements on the assumption that we may be forced into war this summer'."

Regarding Winston Churchill, a wartime friend of Slessor whose rantings about the Nazis were ignored by Chamberlain and his entourage partly (as we explained previously on this blog) because Churchill was the last person to be able to lecture them (he sent most of them to hell in his disastrous Gallipoli campaign of 1915, which led to his being fired from the Cabinet in WWI and then being deemed a "warmonger" and fool in the 1930s when he warned those men he had sent to hell in what sounded to them like a conceited, deluded, vain war-mongering prophecy), Slessor writes on pages 259-260:

"But I do not regard uncritical adulation as a compliment to any man. Mr Churchill is human, and as such makes mistakes; and the mistakes of a really big man are liable sometimes to be big mistakes. I am not so arrogant as to claim that when I disagreed with him I was necessarily right. But this book aims to be a humble contribution to history by recording events as they appeared ... I confess that I thought at the time, and still think, that policy in Scandinavia in the opening months of 1940 was one direction in which Mr Churchill's splendid aggressive spirit got the better of his judgement. ... On September 20, 1939, in the House of Commons, Mr Chamberlain said, 'What we will not do is to rush into adventures that offer little prospect of success and are calculated to impair our resources and to postpone

ultimate victory ... Strategy is the art of concentrating decisive force, at the decisive point, at the decisive moment'. That perfectly sound principle had not prevented the British Government a few days before from issuing a declaration that a German attack upon Norway would meet with the same resistance as an attack upon Great Britain; a declaration, unexceptionable in theory, to which we had about as much chance of giving practical effect as to our earlier guarantee to Poland of all assistance in our power - which amounted to precisely nil."

Naugthy, but true. Chamberlain, the lover of Nazism, was the better strategist, whereas the more "experienced" military man, Churchill was a bungler competent only to issue ranting Goebbels' style propaganda, aided by brandy and cigars, who needed constant restraining and coercing by the straight-jacket of his asylum keepers like Slessor, who were often overcome by Churchill's fits of insanity. In reality, Slessor writes on page 258, Churchill was a baby who was most happy playing his war with toy bombs:

"This [fluvial mine prototype] was really a sort of toy that Mr Churchill enjoyed playing with - a toy with just the appropriate flavour of aggressive villainy. I remember him one evening, as the little gadget in the fire-bucket touched off its electric bulb, taking his cigar out of his mouth and saying, with his irrestible chuckle, 'This is one of those rare and happy occasions when respectable people like you and I can enjoy pleasures normally reserved to the Irish Republican Army'."

Churchill was not Fiddling like Nero while Rome Burned, but was Commissioning a War Song while London Burned, page 303:

"On one occasion we were walking in the [late 1940 Chequers] garden with the Prime Minister [Churchill] late after dinner. London was being bombed and the eastern sky was red with the glare of great fires. The P.M. gazed at it sadly, shaking his head. Then he said unexpectedly that it was strange that this war, unlike the last, had produced no good songs - no Tipperary or Keep the Home Fires Burning. Someone suggested the Lambeth Walk, but that was held not to count because it was pre-war. 'I must write to Novello and tell him to produce a good war song,' said the P.M., and then, with the chuckle, 'but this time it will have to be Stop the Home Fires Burning'."

Slessor finishes his book on pages 636-7, stating that the the proven role of air power in WWII, in defeating enemy air power and "Germany's oil fuel" to pave "the way for the invasion", was finally incorporated into British defence policy by Churchill in his postwar Statement on Defence, Commandment 9391: "this deterrent must rest primarily on the stategic air power of the West, armed with its nuclear weapons. The knowledge that aggression will be met by **overwhelming** (emphasis added) nuclear retaliation is the surest guarantee that it will not take place."

ABOVE: Russian President Putin used exactly the same excuse for invading Ukrainian territory that Hitler used in his invasions (precise quotation is below): he just wants to enable his nationals abroad to have the "right" to join the Russian Federation, and he repudiates the notion that Ukraine is a soverign country because it is "just" an arbitrary political fabrication like Czechoslovakia was in 1938 (he could - and will soon - be saying that about the UN, USA, EU, UK, etc.). Russia should have been paid off at the end of the 1st Cold War in 1991, with some kind of Marshall Plan, as was used to safely demilitarise Germany, Japan et al in 1945. But the UK instead sent BP into Russia to help them develop high technology oil and gas supplies, which they now use against us. Russia is a corrupt, bankrupt superstate which now has its own oil and gas supplies, its own massive nuclear weapons infrastructure, and a rapidly

depleting obsolete conventional weapons stockpile. There are many former USSR territories and other areas Putin can lay semi-spurious claim to, beyond Ukraine. Russia gained Warsaw, Poland, under the 1815 Vienna Settlement, losing it in 1918 when Poland became independent. Finland was gained by Russia from Sweden in 1809, Alaska became Russian territory in 1784 before being sold by the Tsar to USA, and so on. If Ukraine is "simply" surrendered to Russia, the way Chamberlain surrendered Czechoslovakia to Hitler (rewarding Nazis for aggression, using financial costs and fears of poison gas war as his excuse), WWWIII by deliberate "accident" or "miscalculation" will be far more likely than during the Cuban missiles crisis of 1962, when the West had a massive nuclear superiority over Russia! Gustav Bychowski's 1948 *Dictators and Disciples* explains dictatorship as an interdependence between the leader and the people, e.g. Stalin's war and territorial expansions (with help from propaganda) actually enhanced his reputation with his own people, and he really couldn't have cared less if the "capitalists" in the rest of the world disapproved.

ABOVE: **telegrams from Sir Henderson, British Ambassador to Nazi Germany, to British Foreign Secretary Halifax, 22 February 1939 and 15 March 1939 (taken from Docs on Brit Foreign Policy, s3, v4, pages 593-5 linked online here),** proving that even at that late time, freedom of criticism of the Nazis by certain (humane) elements of the British press and Jews (!) were still being blamed for Nazi evil, and this is some 4-5 months after Kristallnacht, and many years after *Mein Kampf*. Notice that Henderson writes that he would like to see Nazi Field Marshall Goering awarded a medal by the King to appease him (*like his from the King for helping Chamberlain to give away Sudetenland to the Nazis 5 months earlier in exchange for Hitler's autograph!*), then writes that he had sympathy with the Jews, but then immediately claims that the Jewish plight is "not a basis for policy for England." When Hitler broke the worthless Munich Agreement by invading the remainder of Czechoslovakia in March 1939, Henderson telegrammed Halifax: "What distresses me more than anything else is the handle which it will give to the critics of Munich." Well, not to Captain W. E. Johns, who was fired two months previously, from his editorships of *Popular Flying* and *Flying* on his orders, for criticisms of the government using subversive methods (government pressure on his publisher!). Let's now go back two volumes, and see what Henderson and Chamberlain did to try to start World War II (while lying about it) in 1938:

"If I am right, I do wish it might be possible to get at any rate 'The Times', Camrose, Beaverbrook Press &c. to write up Hitler as the apostle of Peace. It will be terribly shortsighted if this is not done. Cannot the News Dept. help? ... give Hitler as much credit as possible. The last word is his. We make a great mistake when our Press persists in abusing him. [He and Chamberlain "bravely" abused magazine publishers into getting Captain W. E. Johns fired from his position as editor of best selling magazines *Popular Flying* monthly and *Flying* weekly for calling for the deterrence of Nazi aggression by an arms race, in case their great lover Adolf Hitler was a trifle displeased with the British press! So much for liars who claim their exists "freedom of the press"!] ... If our only satisfaction is to slang him, then we must abandon hope of ever getting results."

- Sir Nevile Meyrick Henderson, GCMG (1882-1942), British Ambassador to Nazi Germany, Letter to Sir A Cadogan from the British Embassy in Berlin, 6 September 1938, reprinted as document 793 on page 257 of E. L. Woodward, Rohan Butler, and Margaret Lambert (editors), *Documents on British Foreign Policy, 1919-1939, Third Series, Volume II, "1938",* published in 1949 by His Majesty's Stationery Office, SBN-11-591527-3*. This particular volume doesn't appear to be available online yet, although it is the dynamite in the series! (I'm quoting this here to PROVE that there is nothing NEW in lying fascists in Western governments promoting racist fascism by

secretly wining and dining - or coercing with threats of abuse if the velvet glove over the iron fist fails to work - the populist media into supporting terrorism against the Jews and others in the name of the Devil.)

"I reminded him [Adolf Hitler, during conversation at Berchtesgaden, 15 September 1938] that after 1914 it was said that if we had then told Germany that we would come in, there would have been no war ... He [Hitler] said a warning and a threat had the same effect. I dissented ... but I did not pursue this subject ... He said that he had from his youth been obsessed with the racial theory and he felt the Germans were one ... he is concerned with ten millions of Germans, three millions of whom are in Czechoslovakia. He felt therefore that those Germans should come into the Reich. They wanted to and he was determined that they should come in. Apart from that, he said, there was no other place where frontiers made any territorial difficulty. ... he was out for a racial unity and he did not want a lot of Czechs, all he wanted was Sudeten Germans."

- British Prime Minister Neville Chamberlain, **BRITISH** Minute of the Conversation between the Prime Minister and the Fuhrer, 15 September 1938 at Berchtesgaden, reprinted as document 895 at page 339 of E. L. Woodward, Rohan Butler, and Margaret Lambert (editors), *Documents on British Foreign Policy, 1919-1939, Third Series, Volume II, "1938",* published in 1949 by His Majesty's Stationery Office, SBN-11-591527-3*. (I'm quoting this here to PROVE that talking to evil devils provides you a load of lies, propaganda, and false promises.)

"He, Mr Chamberlain, must frankly admit that many Englishmen regarded the Fuhrer's speeches solely as words, behind which were concealed carefully prepared plans. He, Mr Chamberlain, however, regarded the Fuhrer as a man who, from a strong feeling for the sufferings of his nation, had carried through the renaissance of the German nation with extraordinary success. He had the greatest respect for this man ... After 1914 England had been reproached on many sides because she had not made her intentions clear enough. The war might perhaps heve been avoided, these critics objected, if England had taken a clearer attitude. ... The Fuhrer replied that ... after a certain moment, little could be done to change the unalterable course of events. In his opinion a British warning would have come too late in 1914 as well, since the difficulties had by then reached too advanced a stage."

- British Prime Minister Neville Chamberlain, GERMAN (Herr Schmidt, translator) Minute of the Conversation between the Prime Minister and the Fuhrer, 15 September 1938 at Berchtesgaden, reprinted as document 896 at pages 342 and 346 of E. L. Woodward, Rohan Butler, and Margaret Lambert (editors), *Documents on British Foreign Policy, 1919-1939, Third Series, Volume II, "1938",* published in 1949 by His Majesty's Stationery Office, SBN-11-591527-3*. (*I'm quoting this here to PROVE differences between the BRITISH and GERMAN Minutes of the Conversation between Chamberlain and Hitler at Berchtesgaden, 15 September 1938!*)

*"Herr Hitler said [to Chamberlain at Godesberg, 22 September 1938] that he would like to thank the Prime Minister for his great efforts to reach a peaceful solution. He was not clear, however, whether the proposals, of which the Prime Minister had just given him an outline, were those submitted to the Czechoslovak Government. The Prime Minister replied: Yes. Herr Hitler said he was sorry, since those proposals could not be maintained. ... Czechoslovakia was an artificial construction, which was called into being and was established solely on the grounds of political considerations." [**Cf. Putin's description of Ukraine, DUH!**]*

- Note of a Conversation between Mr Chamberlain and Herr Hitler at Godesberg, 22 September 1938, reprinted as document 1033 at page 465 of E. L. Woodward, Rohan Butler, and Margaret Lambert (editors), *Documents on British Foreign Policy, 1919-1939, Third Series,*

Volume II, "1938", published in 1949 by His Majesty's Stationery Office, SBN-11-591527-3*. (*I'm quoting this here to PROVE what happens when you are such an EGOTIST you think you can "negotiate" a "peace agreement" with the Devil!*)

"The Prime Minister [Chamberlain, at the Munich Conference with Hitler on 29 September 1938] pointed out that he could not give such a guarantee [for the Sudeten evacuation of Jews *by 10 October 1938 for FAST Nazi annexation*] ... This led to a tirade from Herr Hitler (who was otherwise calm throughout most of the Conference), his line being that if - having asked him to stay his hand - we were not prepared to take the responsibility of ensuring the concurrence of Czechoslovakia we had better let him resume his way!"

- Note by Sir Horace Wilson on the Munich Conference, between Chamberlain and Hitler, 29 September 1938, reprinted as document 1227 at page 631 of E. L. Woodward, Rohan Butler, and Margaret Lambert (editors), *Documents on British Foreign Policy, 1919-1939, Third Series, Volume II, "1938",* published in 1949 by His Majesty's Stationery Office, SBN-11-591527-3*. (*I'm quoting this here to PROVE that once you start on the road to diplomacy with a Devil who takes a mile whenever you give an inch, it becomes worse than the script for an unfunny, depressing episode of Monty Python's Flying Circus. It's worse than the dead parrot sketch!*)

*"Herr Hitler [to Chamberlain, in Hitler's Munich Flat, 30 September 1938]: Years ago he [Hitler] made proposals for the restriction of the use of the air arm. He himself fought in the Great War and had a personal knowledge of what air bombardment means. It had been his intention, if he had to use force, to limit air action to front line zones as a matter of principle ... he would always try to spare the civilian population and to confine himself to military objectives. ... Herr Hitler: The situation about air disarmament is just the same as it is in the case of the naval situation. If a single nation refuses to agree, all the others have to follow her example. [**Secretly-rearming fascists agree to PAPER "disarmanent" for the concessions involved like lifting sanctions etc, but then secretly break the agreement! DUH!**] One sees what has happened in the case of the Naval Treaty. When Japan refused to agree, all the other nations had to give up their restriction. It would be just the same if one tried to abolish bombing aircraft. ... He himself [Hitler] had proposed years ago- 1. The abolition of bombing aircraft; 2. If '1.' could not be accepted, the abolition of bombing outside a zone of 15 to 20 km from the front line; and 3. If neither '1.' nor '2.' were accepted, the limitation of bombing to a zone which could be reached by heavy artillery. ... The development of bombing from the air [Hitler declared] extends the horrors of war to the non-combatant population and is therefore a barbarism."*

- Note by Dr Schmidt of a Conversation between the Prime Minister and Herr Hitler, at the latter's Flat in Munich, 30 September 1938, reprinted as document 1228 at pages 636 and 638 of E. L. Woodward, Rohan Butler, and Margaret Lambert (editors), *Documents on British Foreign Policy, 1919-1939, Third Series, Volume II, "1938",* published in 1949 by His Majesty's Stationery Office, SBN-11-591527-3*. (*I'm quoting this here to PROVE that negotiating with dictators is a complete farce; they are experts on "peacemaking" and "disarmament" propaganda lying scams and will turn the tables verbally and appear to be the heroes of liberty!* ***It was at the end of this very meeting that Chamberlain did his "magician act" of plucking a piece of paper from his pocket which outlawed war between the Nazis and British, and they both signed it, which naturally prevented WWII, just as intended! Duh! Wicked diplomacy! It is LINKED HERE with a snap of Chamberlain celebrating his "success" back home from the window of his flat above 10 Downing Street, a fraudulent travesty of propaganda lying which he called "peace in our time", but which would certainly have "earned" him a few dozen Lordships and Nobel peace prizes, if it hadn't been a staged farce.***)

"After emphasising that the gathering was a confidential one, and that nothing was to be quoted as official, the Prime Minister [Chamberlain, speaking CONFIDENTIALLY to the "British Press" on 11 September 1938, in a typical travesty of the populist claims about "freedom of the press" etc.] said: ... War ... is something which might in the very first few hours affect the civilian population. Thereby it becomes an even more dreadful and horrible thing than it was before. The Government's policy and the Government's efforts are directed all the time to the avoidance of any such catastrophe as that [a complete lie since slow rearmament plus appeasement encouraged war as these thugs had been told repeatedly by Captain W. E. Johns in *Popular Flying* and *Flying* editorials, but they had used backhanded techniques to shut up Captain W. E. Johns by getting him fired via subversive pressure on his publisher, proving them narcissistic lying fascist-technique thugs]."

- Text of the Prime Minister's Statement to the Press on September 11, 1938, reprinted as Appendix III at pages 680 of E. L. Woodward, Rohan Butler, and Margaret Lambert (editors), *Documents on British Foreign Policy, 1919-1939, Third Series, Volume II, "1938",* published in 1949 by His Majesty's Stationery Office, SBN-11-591527-3*. (This book can be read like a depressing thriller in a few hours, but we're quoting it here because, unlike history books full of 2nd-hand controversial opinions based on BS like A. J. P. Taylor's "history", it is purely a primary source of actual meeting transcripts, and it is as hard to get your hands on probably due to its expense and people in 1949 Britain wanting to "move on" from the 1930s "appeasement" disaster. Again, as repeatedly pointed out on this blog, appeasement is a wonderful thing and not a problem UNLESS you do it through coercive fear about being wiped off the face of the earth in a 1930s imaginary poison gas cloud, or a 1950s over-hyped nuclear radioactive fallout cloud (all such hyped up "threats" can be easily countered, as we will see in this post, later below). Kennedy made the point in 1940 in *Why England Slept* that appeasement was not a tragic policy; the bad policy was instead a REFUSAL to rearm FASTER than your opponent, simply out of fear of upsetting your opponent or triggering a first strike against yourself if you don't appease the enemy. Coercion is the problem, not "appeasement". By all means appease if you have might on your side and can afford to give favours, just don't do it out of WEAKNESS to encourage your opponent to keep advancing until your back is against the wall, fighting on your opponent's terms.)

ABOVE: compiler of this blog post, anti-nuclear-disarmament (aka Marx-war-for-global-communist-and-peace-through-classwar-and-racewar-and-nuclear-war) liars, **anti-fascist activist Nige Cook**, holding the **fascist Marx-media to account for causing the Ukraine War** since 2006 on this blog with his dad (who took the photo) and author of the 1990-4 *Nuclear Weapons Effects Theory* (censored from publication by Cambridge Uni press's Simon Mitten, Oxford Uni press's Donald Degenhardt, and all the various hyper left wing anti-nuclear lying newspaper editors in the UK, all duped simpletons who believed disarmament Glasstone or Nukemap style populist liars for "peace" aka russian racewar/classwar/nukewar/eurowar/corbynwar).



ABOVE (VIDEO CLIP): Russian State TV Channel 1 preparing Russians *mentally* for nuclear war (*they already have nuclear shelters and a new Putin-era tactical nuclear war civil defense manual from 2014, discussed later in this blog post*) arguing for use of nuclear weapons in Ukraine war in 2023: "We should not be afraid of what it is unnecessary to be afraid of. We need to win. That is all. We have to achieve this with the means we have, with the weapons we have. I would like to remind you that a nuclear weapon is not just a bomb; it is the heritage of the whole Russian people, suffered through the hardest times. It is our heritage. And we have the right to use it to defend our homeland [WFT does he mean, the liberated components of the USSR that gained freedom in 1992?]. Changing the [nuclear use] doctrine is just a piece of paper, but it is worth making a decision."

PLEASE see quote (LINKED HERE) from disarmament liar Noel-Baker on gas masks being universally agreed by experts to be impossible despite their successful use in WWI, in his February 1927 BBC radio broadcast on page 31 of O'brien's official book *Civil Defence,* linked here, and note that the officials were outraged by this lying, *YET REFUSED TO DO ANYTHING TO COUNTER IT BECAUSE THE TIME WAS NOT YET RIPE,* and by the time it was ripe it was too late to avert WWII!

BELOW: extracts from the **unclassified-yet-censored-for-publication "limited distribution" American government book by John Northrop (Handbook of Nuclear Weapon Effects Abstracted from EM-1, a few pages are linked here** to give the flavour of it, without *publishing the entire document which might contain some sensitive data somewhere, and it would take scanning time that I don't have anyway*), effectively replacing Glasstone's 1977 lies book on nuclear weapons. The terrible Carter admin politically correct – i.e. trash – 1977 version of Glasstone's book, The Effects of Nuclear Weapons, deletes all the useful data on protective measures nuclear tests in previous versions, creating the delusion that a nuclear bomb on an unobstructed desert creates the same effect as in a highly shielded concrete city, where buildings PROVABLY absorb all the effects – radiation and also blast as proved by Lord Penney to the continuing horror of the Pentagon's nuke disarmament freaks – VERY effectively, reducing casualties by a factor on the order of 100 from what you get for Glasstone's assumption of nukes over nudist beaches! This is an exact duplication of Britain's gas warfare lying establishment in the 1920s-30s, which refused to engage in public arguments on weapons of mass destruction to debunk lying fascist disarmament and arms control liars, who wanted a world war or peaceful Nazi world domination, not credible deterrence with honest, simple civil defense to make it credible. Over 40 years ago, Samuel Cohen's neutron bomb "controversy" raged: because modern city concrete and steel buildings are blast and heat resistant (unlike the wooden houses with charcoal stoves prevailing in Hiroshima and Nagasaki in 1945), you

can detonate a nuclear weapon at a height that eliminates modern city damage and fallout dust, but that still causes non-lethal EMP or a lethal neutron flash to stop operations by an opponent. So nuclear weapons can be used to credibly deter the invasions that set off the world wars (Belgium 1914, Poland 1939). *The CND/Corbyn claim that there will be uncontrolled automatic nuclear escalation from counterforce to countervalue attacks on civilians is like the claim of inevitable gas war knockout-blow city gas war escalation: gas knockout blow escalation was disproved.*



ABOVE: notice the thermal flash self-shielding of wheat fields from thermal radiation! In reality, anything inflammable merely smokes from the ablation of the outer 0.1mm or so of inflammable material, and thus creates its own protective smokescreen that prevents fires, and nuclear weapons don't ignite anything unless things are practically self-combusting anyway. In very dry weather with a shifting direction breeze, one discarded barbecue can set off a mass fire, without need for any nuclear bombs: the results are identical as per the Arabian proverb, a forest only burns due to its own trees. Nuclear weapons thermal pulses are so short, unlike say the K-T impact explosion around 65 million years ago, that they can only dry out a very thin surface layer of humid "inflammable" (when dry) materials like vegetation. **This was proved by studies of the forest stands on Bikini and Eniwetok during and after multimegaton nuclear tests (photos linked here; taken from Glasstone 1957 and removed corruptly and dishonestly from future propaganda not fact based editions).** Sure, you get smoke without fire from nuclear weapons thermal radiation, but that smokescreen arises rapidly near ground zero and so shields targets ar greater distances. **The existence of an artificial skyline of concrete buildings in the "concrete jungle" of modern cities - unlike Hiroshima and Nagasaki which were mostly single storey wood frame buildings - has a similar effect as proved by British nuclear tests civil defence effectiveness researcher George R. Stanbury, who was ignored for decades for political propaganda reasons by the Pentagon. Dad, an advanced civil defence corp instructor, met Stanbury during a residential course at the civil defence staff college, Easingwold, Yorkshire (having special authority from Essex's Civil Defence chief, to attend as the course was usually for full-time employees only), and later corresponded with British nuclear test and Hiroshima and Nagasaki blast effects expert William G. Penney on blast shielding by cities by blast; he found that both knew that their own specialised effect - thermal and blast, respectively - was exaggerated, but both falsely believed that the other effect. Stanbury "knew" blast was the problem because skyline shielding would stop the radiation and getting people to simply toss wet paper on their fires on the attack warning siren would create an effective smokescreen to stop scattered thermal ray fires/burns, while Penney knew that**

the blast absorption by damage done in modern cities would kill the blast, but thought the thermal flash would start firestorms because he hadn't bothered to investigate ther firestorm mechanism in Hiroshima and had been misled to lies from the Americans on this. Consequently, neither felt inclined to launch a full-on assault on the Pentagon's nuclear weapons effects mythology!

block; padding: 1em 0; text-align: center; clear: left; float: left;">

ABOVE: Russian mobile nuclear missile launchers can move quickly enough to get out of the ~4 psi peak overpressure blast zone (needed to overturn them, provided the blast hits them side-on and not head-on), during the time American Minuteman or Trident missiles are in flight to targets located well inland in Russian territory, e.g. Siberia. Hence, we have toss all deterrence, even if they all get dementia and decide NOT to launch-on-warning in an intense East-West crisis! Duh. Duh. Duh! We'll discuss this in more detail later. EM-1 contains a mathematical model allowing detailed calculations of blast wind pressure induced overturning of mobile missile launchers based on their size and mass, but as we've just pointed out, they can reduce vulnerability simply by moving off when a USA launch is detected, and then turning to face their previous position, and extending their stabiliser/outrigger foot pads. "Simples!", as the Meerkats say in UK TV ads. We have no credible deterrent whatever. We'll discuss this problem of mobile Russian ICBM and tacticla nuclear warhead launchers later in more detail in this post (below).

ABOVE: weapon type 13 in this table of neutron and gammas output spectra from various warheads (the table shows only 4 types out of 13 in EM-1) shows precisely the output from the W79 enhanced-neutron capable tactical deterrent, the only thing we ever had to counter 2000+ Russian neutron bombs. One little snag: we don't have ANY W79's. They were flushed down the pan along with Ukraine's nuclear deterrent. Second little snag: the LOWEST neutron output weapon is type 10 in EM-1 and is conveniently not included in Northrop's summary table above! Guess what the hell the type 10 is? Yup. You guessed right: the primary-only ("tactical") option on the B61's dial-a-yield. *The W79 or "type 13" neutron bomb air burst at 500 m altitude gives a dose at ground zero of 170,000 rads of neutrons plus 27,200 rads of secondary gamma rays, according to EM-1. At the other end of the scale, the lowest neutron dose, just 0.666 rads, is produced by the type 10 in EM-1, the low-yield fission primary stage "dial a yield" option of a B61 thick-cased thermonuclear weapon having multiple yield options*. This is because the casing on a weapon with high yield options absorbs most of the neutrons from the primary stage, and thereby shows that you cannot simply use the low-yield option on a B61 as a replacement for tactical nuclear weapons like neutron bombs. USA nuclear warhead designers have lied to the public and the president about this to make the West vulnerable to Russian coercion, *an infiltration by traitors which makes the Wen Ho Lee "scandal" about data leaked to China look like a storm in a teacup* (the USA has declassified some B61 design detail, shown later below).

"***William J. Broad: Ukraine gave up a giant nuclear arsenal 30 years ago. Today there are regrets. At the end of the Cold War, the third largest nuclear power on earth was not Britain, France or China. It was Ukraine. The Soviet collapse, a slow-motion downfall that culminated in December 1991, resulted in the newly independent Ukraine inheriting roughly 5,000 nuclear arms that Moscow had stationed on its soil. Underground silos on its military bases held long-range missiles that carried up to 10 thermonuclear warheads, each far stronger than the bomb that leveled Hiroshima. Only Russia and the United States had more weapons." -*** **https://kyivindependent.com/hot-topic/william-j-broad-ukraine-gave-up-a-giant-nuclear-arsenal-30-years-ago-today-there-are-regrets**

DISARMAMENT WARMONGERING RESULTS: (1) Disarmament via agreement (ignoring for now the 30 September 1938 UK-Nazi signed peace pact, etc) was disproved by Putin when - despite being signed up to the Chemical Weapons disarmament conventions, he ILLEGALLY BROKE THE DISARMAMENT AGREEMENTS and used chemical weapons, not just sarin nerve agent to help Assad win in Syria, but the latest most lethal Russian agent, Novichok, in the UK in 2018 to murder Dawn Sturgess (**please see our blog post chronology at the time of the attack and analysis of Russian lying propaganda on disarmament, linked here**). *If he does that for Novichok, he can do it for tactical nuclear weapons!* In WWII nuclear weapons were even *made in secret from scratch* by a democracy which had never made a nuclear weapon and wasn't even sure if it was possible, and then used on a *nuclear unarmed* state during the war, despite the democracy in question not having stockpile containing a single nuclear weapon when the war started! *So this proves that 100% total disarmament can't stop a nuclear war!* Unbelievable fact, that, according to the simplistic, fake news and smug disarmament lies you read in the papers and see on fascist style SIPRI lying TV murderers of kids through disarmament to prevent the credible deterrence of war, isn't it? Thus, paper agreements with the entire class of lying thug dictatorships that use WMDs to win a war against you, are useless. Hoping Hitler would cover himself shame if he violated agreements wasn't a good military policy, but it was used by thugs who clearly wanted a war in the 1930s and were rewarded with peace prizes in consequence (Angell and Philip Noel-Baker were the worst of the lot; the latter was made a Lord and continued to splutter lies for disarmament in 1980 in the House of Lords with no opposition, as we'll expose later in this post). The counter-argument that signed up agreements are rarely broken between democracies is vacuous because as Weart proved in *Never At War* years ago, democracies don't fight one another. In other words, the only situation in which written laws stop wars or crimes is for lad-abiding people who don't start wars or commit crimes! The only situation where wars or crimes can occur is for despots and criminals, who break agreements and laws! So bits of paper are no substitute for credible deterrence of dictators. The whole basis for "arms control" and "disarmament" is as fake a Angell's faked *Great Illusion* "disprove" of arms-races to avoid wars, which led to precisely what he claimed to avoid. See Joad's 1939 *Why War* for how Angell used his "arms race" lie to counter Churchill's pre-WWI call for superiority to deter the Kaiser, and see President kennedy's *Why England Slept* to see how Angell's arms-race lie was used by Grey to excuse his failure to deter WWI, and how disarmers used that arms race lie repeatedly throughout the 1920s and 1930s to set off WWII, by ensuring Britain avoided an arms race with the Nazis, by rearming slower than the Nazis to avoid giving Hitler any excuse to set off WWII - **by the way, this was 100% successful and Hitler didn't declare war on the UK first, it was the UK that finally had to declare war because appeasement allowed virtually bloodless invasions and cold-blooded genocide!**),

(2) unilateral nuclear disarmament for guaranteed peace! Wonderful idea. But Japan was in a nuclear unarmed position in August 1945, and it did not take a Hitler or a Putin or even a Republican to drop not one but two nuclear weapons on it. Democratic President Harry Truman didn't hesitate to "press the metaphorical button" against a country which lacked nuclear weapons, just as the USA presently lacks even a single credible, tactical enhanced radiation-capable W79 warhead (if Putin gets his way we find out what Hitler might have done with 2000+ tactical neutron bombs against a USA which now hates Kennedy's *Why England Slept*).

(3) HISTORY SHOWS THE ONLY COUNTRY TO HAVE BEEN ATTACKED WITH NUCLEAR WEAPONS (AUGUST 1945) DID N-O-T HAVE ANY NUCLEAR WEAPONS. **BEING NUCLEAR UNARMED DIDN'T SAVE IT FROM BEING NUKED**. Moreover, the pre-war stockpiles that disarmers concentrate on minimising are almost purely FOR DETERRENCE, as easily proved by dividing those pre-war (pre WWI and pre WWII) weapons stockpiles into the total munitions used in wars. In other words, the number of pre-war weapons you have has jack ---- relation to the number of weapons used in the war you fail to credibly deter! This COMPLETELY DISPROVES THE "ARMS RACE" CAUSES SLAUGHTER MYTHS OF WWI AND WWII! The weapons that flattened the wooden

houses (not concrete buildings in general, or air raid shelters in general) in Hiroshima and Nagasaki, and that burned the wooden medieval slums of Hamburg, *were made DURING THE WAR, not in the non-existent "arms race" prior to the war.* (Let that fact sink in for 24 hours before you read Glasstone or play with Nukemap, or head "history" written by Russian biased Marxists like A. J. P. Taylor and Adolf Hitler. Don't trust those Nazis, the're unreliable due to bias!)

(4) GLASSTONE/NUKEMAP IGNORE THE SINGLE MOST IMPORTANT USE/EFFECT OF NUCLEAR WEAPONS: ***DETERRENCE IS AN EFFECT OF NUCLEAR WEAPONS AND A USE OF NUCLEAR WEAPONS THAT YOU IGNORE AT YOUR PERIL,*** AND AT THE PERIL OF UKRAINIAN KIDS, AND IN FUTURE, THE LIVES OF AMERICAN KIDS WHO YOU INSTRUCT NOT TO DUCK AND COVER AND NOT TO HAVE A DETERRENT THAT IS CREDIBLE! **This is all Russian Cold War anti-Western civil defence lying! Russia was (and is) totally pro-civil defence just as it is and was always pro-nuclear; the anti-civil defence stuff and anti nuclear stuff from Russia and its comintern comrades in the Western Marx Media is a trick to undermine Western defence, enabling Russian superiority; unfortunately people like Hans Bethe and the entire Western "arms control and disarmament" organization fails to appreciate the con-trick and hypocrisy from Russia on this. As a result, the effects of nuclear weapons have been totally distorted by Glasstone** / Nukemap propaganda on behalf of pseudo (fake news) "Arms Control" liars who are effectively fellow travellers of Putin's agents in the media: nuclear weapons in the Kennedy era were used to try to de-escalate crises, e.g. USA had a large nuclear superiority at the time of the October 1962 Cuban missiles crisis and in his 22 October 1962 television address to the American people, Kennedy was able to use that nuclear superiority to deter what the Marx media call nuclear "accidents" (deliberate carelessness or contrived attacks under the name of a "that was JUST a mistake - SORRRRRREEEEY, now I've said sorry shut the ---- up about it or you'll start a REAL war, matey!"). Guess what? "Arms Conrol" mass-murderers with kid's blood soaked hands who caused all the wars that should have been credibly deterred by USING TACTICAL NUCLEAR WEAPONS TO CREDIBLY DETER WAR, refuse to acknowledge, assess, or respect the true fact that kennedy used nuclear superiority in 1962 and that parity and inferiority encouraged genocide by the Nazis! What newspaper or TV station in the corrupt West will publish this? None. They're all determined to soak their hands repeatedly in blood so they can report mass murders, not deter war (a newsroom "non-event: move along please, nothing to see here" that doesn't exactly "boost viewing figures or sell toilet paper").

GLASSTONE'S EFFECTS OF NUCLEAR WEAPONS UNOBSTRUCTED TERRAIN DATA DEBUNKED FOR STRATEGIC COUNTERVALUE DETERRENCE

If the effects of nuclear weapons are so terribly extensive, why not simply reduce their yields from megatons to subkiloton yield like the W54 warhead? If fallout is such a problem, why not use air bursts and also put up with a reduction in overall yield to use a clean (non-oralloy loaded) secondary stage, like the 95% fusion Redwing-Navajo test of 1956? **Such questions get to the heart of the groupthink political disarmament mythology on nuclear weapons. The reality is that there are serious problems in public appreciation of nuclear deterrence. The whole concept of deterrence is undermined by secrecy. Once your opponents have nuclear weapons, secrecy only serves to keep the populations of democracies ignorant of the facts. As with Edward Witten promoting superstring "theory" with the fake news claim "there are no alternatives to what we say" (and consequently such alternatives must be opposed and censored out by groupthink fake "peer" review), underhand methods are used by the self-enobling "disarmament" brigade to make false assertions about nuclear weapons, to undermine nuclear deterrence. Such "peace" media propaganda and "disarmament" lying was used by Hitler to generate appeasement which allowed WWII, and again in the Cold**

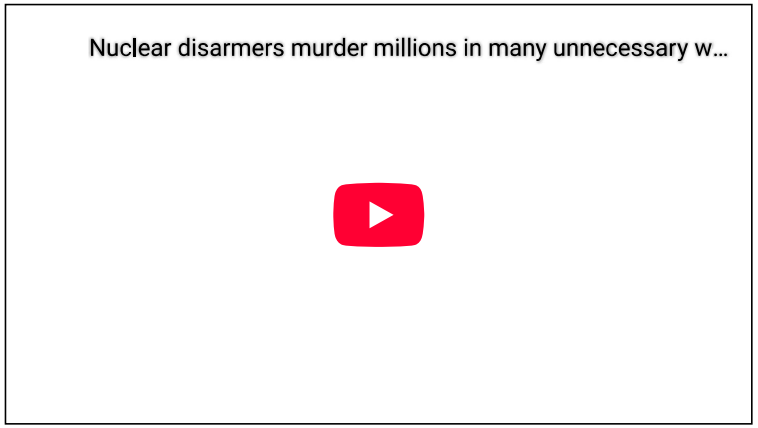
War it was backed by the USSR via the Moscow based World Peace Council, which infiltrated disarmament organizations in the West with propaganda. The exaggeration of nuclear weapons effects by draconian propaganda for disarmament is now leading to a lack of credible deterrence of precisely the kind of invasions (Belgium 1914, Poland 1939) that triggered both world wars. In reality, if you disarm democracies sufficiently that Teller's deterrent criterion of "overwhelming superiority" is removed, you clearly invite a return of the world war. Perhaps the most absurd kind of exaggeration is the Glasstone/Nukemap application of free-field nuclear test data from deserts to modern concrete cities which absorb energy from blast, nuclear and thermal radiation quite efficiently. (All published here in 2006, and ignored.)

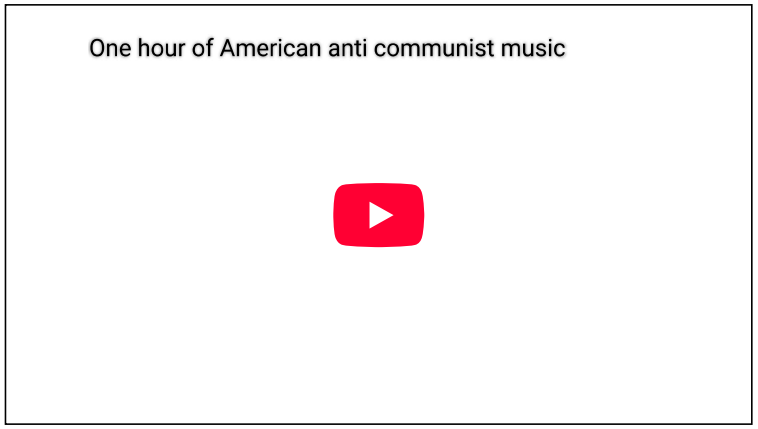
If you're sick of reading rubbish on nuclear effects by authors who defend Russian aggression as a reaction against Western imperialism, and that the Ukraine war proves we must disarm now to prevent nuclear deterrence of WWIII (some gung-ho military folk will endorse that, too, seeing some kind of fun to be had in the hell of a conventional WWIII or more likely surrender and then an unelected "world government for peace" of the Brezhnev variety), then one really good, well informed nuclear weapons history (unlike the Hiroshima effects lies and propaganda about people with no feet running around in Hiroshima quoted uncritically by Mr Rhodes et al.), albeit subjected to a **hate rant by Carey Sublette ("Most of the text that is not Shelton's actual recollections or direct commentary is lifted verbatim from government reports"),** who also runs a site promoting lying ignorant crap about nuclear weapons designs and effects over unobstructed deserts being applicable to modern city targets and who falsely claimed it contained plagiarism (it doesn't, and the Nukemap guy also deleted a comment by me pointing out that Feynman does write about what he actually did at Los Alamos - e.g. running the implosion calculations on IBM mechanical card sorters - in one of his books, after the Nukemap guy had attacked Feynman for allegedly not being clear), is the **Shelton's Reflections of a Nuclear Weaponeer (very brief extract of under 5% of the book is linked here, just to give the flavour), particularly the 2nd edition of 1990 which has enlarged page litho printing (it's literally the size and mass of a good old fashioned Church Bible) and contains vital updates like color photos supplied by Agnew, and also in the last notes section, Lord Penney's endorsement of the 1st edition.** Shelton (October 4, 1924 - November 27, 2014) doesn't pander to the USSR, their spies, or radiation orthodoxy. He writes that by helping to credibly deter WWIII, the bomb proved useful and we don't need to forget that. Not a message Putin and his friend thugs in Western "arms control and disarmament" seem to appreciate.

> Also in living memory (but now practically entirely deleted from the mainstream pseudo-"history" of the appeasement, disarmament, collaborate-with-thugs-for-peace-not-nuclear-deterrence pseudo-"communists") is Andrei Sakharov's Memoirs (Knopf 1990), which details the gulag and psychiatric treatment provided by the CCCP for dissidents.
>
> Sakharov was exiled with his wife to Gorky by Brezhnev for criticising the latter's decision to invade Afghanistan at the end of 1979. He was there relentlessly persecuted by the KGB and went on repeated hunger strikes for 7 years until Gorbachev released him. His statement of 27 January 1980 (Appendix B of his Memoirs, pp. 673-5):
>
> "On January 22, I was detained on the street and taken by force to the USSR Procurator's office ... I was asked to return the medals and orders and certificates ... Rekunkov also informed me of the decision to banish me to the city of Gorky, which is closed to foreigners ... I was instructed to report three times a month to the police ... The authorities are completely isolating me from the outside world. The house

is surrounded 24 hours a day by police and the KGB, who keep away all visitors, including my friends. Telephone connections with Moscow and Leningrad are cut off. We have not even been able to call my wife's mother ... Even in prison, there is more possibility of communication with the outside world ... The worsening of the international situation was caused by the following actions of the USSR ... Supporting terrorist regimes ... Supporting the actions of quasi-governmental terrorists in Iran who have violated diplomatic immunity ... the invasion of Afghanistan ..."

(That time, we still had the W79 neutron bomb, the threat of tit-for-tat retaliation if Russia tried to escalate to win that war. Please listen to the **1951 Jackie Doll and his Pickled Peppers song** opposing Truman's decision to nuke CIVILIANS in Japan but NOT fascist troops in Korea. *General McArthur gave Truman his firm MIDDLE FINGER AND RESIGNED IN PROTEST, like the DECENT OLD SOLDIER HE WAS. Killing off Joe Stalin in 1951 instead of appeasement could have saved millions in Korea, Vietnam, Afghanistan, Iraq and now Ukraine - and note that the military casualty figures for the "Ukraine War" are BS, since they don't include all those elderly Europeans killed by the rising cost of heating fuel and food - due to the war cutting cheap oil and gas supplies. Millions are being slowly murdered by those fascist pseudo-communists; if they want TRUE COMMUNISM start by BEING TRUTHFUL and F=== OFF with the mass murdering wars, F=== OFF with the endless Orwellian doubletalk S=== PROPAGANDA, and F=== OFF killing the Jews to try to steal their money to fund DICTATORSHIPS OF EVIL disguished as socialist or communist utopias*.)







ABOVE: Nigel Farage (who ran the Brexit Campaign in UK that got the UK out of the dictatorial EU which was desperately and "secretly" trying to start WW3 with Russia in order to create a Communist Dictatorial "Utopia" of anti-Individualism from the radioactive rubble in the aftermath) reinventing himself as Lord Halifax circa 1940, in demanding we ask Putin "what price peace?" I unfortunately

feel the need to respond to Mr Farage. **Farage, you correctly called for a new British Civil Defence Corps back in February 2014, complaining about Marxist PM Harold Wilson's decision to scrap it to curry favour with his Labour Party militant Marxists (who wanted WW3 and Russian annexation) in 1968**, so why are you NOT doing this now? Don't you know the facts on this blog? And why aren't you calling for NATO to expand and for tactical neutron bombs in every one, to deter, stop and prevent a repetion of the invasions in Europe that sparked each World War (invasion of Belgium by concentrated force in 1914, invasion of Poland by concentrated Russian and German force in 1939). Why are you calling for a repeat of the 30 September 1938 "peace deal" between Chamberlain and Hitler? Why? Are you that ignorant of the history of civil defence effectiveness, tactical nuclear war deterrence, and appeasement being used by dictatorships to inure their peoples in the need for aggressive actions that can only escalate into mass murder? **In an ideal world, Ukraine would secretly assassinate Putin; sadly this was attempted 42 times with Hitler and failed, so don't hold your breath.**

"Ignorance and misinformation can handicap the progress of a city or a company, but they can, if allowed to prevail in foreign policy, handicap this country's security. In a world of complex and continuing problems, in a world full of frustrations and irritations, America's leadership must be guided by the lights of learning and reason - or else those who confuse rhetoric with reality and the plausible with the possible will gain the popular ascendancy with their seemingly swift and simple solutions to every world problem."

- President John F. Kennedy's ungiven speech to the Dallas Trade Mart on 22 November 1963.

Update (19 January 2024): Jane Corbin of BBC TV is continuing to publish ill-informed nuclear weapons capabilities nonsense debunked here since 2006 (a summary of some key evidence is linked here), e.g. her 9pm 18 Jan 2024 CND biased propaganda showpiece Nuclear Armageddon: How Close Are We? https://www.bbc.co.uk/iplayer/episode/m001vgq5/nuclear-armageddon-how-close-are-we which claims - from the standpoint of 1980s Greenham Common anti-American CND propaganda - that the world would be safer without nuclear weapons, despite the 1914-18 and 1939-45 trifles that she doesn't even bother to mention, which were only ended with nuclear deterrence. Moreover, she doesn't mention the BBC's Feb 1927 WMD exaggerating broadcast by Noel-Baker which used the false claim that there is no defence against mass destruction by gas bombs to argue for UK disarmament, something that later won him a Nobel Peace Prize and helped ensure the UK had no deterrent against the Nazis until too late to set off WWII (Nobel peace prizes were also awarded to others for lying, too, for instance Norman Angell whose pre-WWI book The Great Illusion helped ensure Britain's 1914 Liberal party Cabinet procrastinated on deciding what to do if Belgium was invaded, and thus failed deter the Kaiser from triggering the First World War!). The whole basis of her show was to edit out any realism whatsoever regarding the topic which is the title of her programme! No surprise there, then. Los Alamos, Livermore and Sandia are currently designing the W93 nuclear warhead for SLBM's to replace the older W76 and W88, and what she should do next time is to address the key issue of what that design should be to deter dictators without risking escalation via collateral damage: "To enhance the flexibility and responsiveness of our nuclear forces as directed in the 2018 NPR, we will pursue two supplemental capabilities to existing U.S. nuclear forces: a low-yield SLBM warhead (W76-2) capability and a modern nuclear sea launched cruise missile (SLCM-N) to address regional deterrence challenges that have resulted from increasing Russian and Chinese nuclear capabilities. These supplemental capabilities are necessary to correct any misperception an adversary can escalate their way to victory, and ensure our ability to provide a strategic deterrent. Russia’s increased reliance on non-treaty accountable strategic and theater nuclear weapons and evolving doctrine of limited first-use in a regional conflict, give evidence of the increased possibility of Russia’s employment of nuclear weapons. ... The NNSA took efforts in 2019 to address a gap identified in the 2018 NPR by converting a small number of W76-1s into the W76-2 low-yield variant. ... In 2019, our weapon modernization programs saw a setback when reliability issues emerged with commercial off-the-shelf non-nuclear components intended for the W88 Alteration 370 program and the B61-12 LEP. ... Finally, another just-in-time program is the W80-4 LEP, which remains in synchronized development with the LRSO delivery system. ... The Nuclear Weapons Council has established a requirement for the W93 ... If deterrence fails, our combat-ready force is prepared now to deliver a decisive response anywhere on the globe ..." - Testimony of Commander Charles Richard, US Strategic Command, to the Senate Committee on Armed Services, 13 Feb 2020. This issue of how to use nuclear weapons safely to deter major provocations that escalate to horrific wars is surely is the key issue humanity should be

concerned with, not the CND time-machine of returning to a non-nuclear 1914 or 1939! Corbin doesn't address it; she uses debunked old propaganda tactics to avoid the real issues and the key facts.

For example, Corbin quotes only half a sentence by Kennedy in his TV speech of 22 October 1962: "it shall be the policy of this nation to regard any nuclear missile launched from Cuba against any nation in the Western hemisphere as an attack by the Soviet Union on the United States", and omits the second half of the sentence, which concludes: "requiring a full retalitory response upon the Soviet Union." Kennedy was clearly using US nuclear superiority in 1962 to deter Khrushchev from allowing the Castro regime to start any nuclear war with America! By chopping up Kennedy's sentence, Corbin juggles the true facts of history to meet the CND agenda of "disarm or be annihilated." Another trick is her decision to uncritically interview CND biased anti-civil defense fanatics like the man (Professor Freedman) who got Bill Massey of the Sunday Express to water down my article debunking pro-war CND type "anti-nuclear" propaganda lies on civil defense in 1995! Massey reported to me that Freedman claimed civil defense is no use against a H-bomb, which he claims is cheaper than dirt cheap shelters, exactly what Freedman wrote in his deceptive letter published in the 26 March 1980 Times newspaper: "for far less expenditure the enemy could make a mockery of all this by increasing the number of attacking weapons", which completely ignores the Russian dual-use concept of simply adding blast doors to metro tubes and underground car parks, etc. In any case, civil defense makes deterrence credible as even the most hard left wingers like Duncan Campbell acknowledged on page 5 of *War Plan UK* (Paladin Books, London, 1983): "Civil defence ... is a means, if need be, of putting that deterrence policy, for those who believe in it, into practical effect."

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http://glasstone.blogspot.com/2022_02_22_archive.html NUKEGATE - Western tactical neutron bombs were disarmed after Russian propaganda lie. Russia now has over 2000... "Disarmament and arms control" charlatans, quacks, cranks, liars, mass murdering Russian affiliates, and evil genocidal Marxist media exposed for what it is, what it was in the 1930s when it enabled Hitler to murder tens of millions in war. Glasstone's and Dolan's 1977 Effects of Nuclear Weapons deceptions totally disproved. Professor Brian Martin, TRUTH TACTICS, 2021 (pp45-50): *"In trying to learn from scientific publications, trust remains crucial. The role of trust is epitomised by Glasstone's book The Effects of Atomic Weapons. Glasstone was not the author; he was the editor. The book is a compilation of information based on the work of numerous contributors. For me, the question was, should I trust this information? Was there some reason why the editors or authors would present fraudulent information, be subject to conflicts of interest or otherwise be biased? ... if anything, the authors would presumably want to overestimate rather than underestimate the dangers ... Of special interest would be anyone who disagreed with the data, calculations or findings in Glasstone. But I couldn't find any criticisms. The Effects of Nuclear Weapons was treated as the definitive source, and other treatments were compatible with it. ... One potent influence is called confirmation bias, which is the tendency to look for information that supports current beliefs and dismiss or counter contrary information. The implication is that changing one's views can be difficult due to mental commitments. To this can be added various forms of bias, interpersonal influences such as wanting to maintain relationships, overconfidence in one's knowledge, desires to appear smart, not wanting to admit being mistaken, and career impacts of having particular beliefs. It is difficult to assess the role of these influences on yourself. "*

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Glasstone's fake nuclear weapon data for unobstructed terrain debunked for cities! Realistic effects and credible nuclear weapon capabilities for deterring or stopping aggressive invasions and attacks which could escalate into major conventional or nuclear wars. Credible nuclear deterrence of invasions and conventional wars reduce the risk of large conventional and nuclear wars occurring through escalation of invasions such as the invasion of Belgium in 1914 and the invasion of Poland in 1939, of surprise attacks like those against France in 1940 and of Russia and Pearl Harbor in 1941, Afghanistan in 1979, Kuwait in 1990, or Crimea in 2014. Contrary to irrational, pseudo-scientific propaganda, the number of nuclear weapons is smaller than the millions of conventional weapons used in large wars and the correct scaling shows that the overall effects are similar, not massively different as often claimed for political propaganda by enemies of peace. Furthermore, the greater time delay of effects from nuclear weapons over the damaged area increases the efficiency of cheap civil defence countermeasures, as compared to conventional weapons. We need credible effects of nuclear weapons for real world peace: peace through tested, proved and practical declassified deterrence and countermeasures against collateral damage. Credible deterrence through simple, effective protection against concentrated and dispersed invasions and aerial attacks. Discussions of the facts as opposed to inaccurate, misleading lies of the "disarm or be annihilated" political dogma variety. Hiroshima and Nagasaki anti-nuclear propaganda debunked by the hard facts. Walls not wars. Walls bring people together by stopping divisive terrorists. In conclusion, credible nuclear deterrence of conventional war offers a beautiful opportunity to create a peaceful world, free from fear peddling, ranting dictators. The only oppositions you will meet will come from authoritarian obsessed fear peddling myth makers. If they can't tell the truth and face the facts, why listen to them? Please see our post on the need to *deter not only direct threats from nuclear attacks but also conventional wars and invasions* that can *escalate* into nuclear wars (as proved by the use of nuclear weapons in WWII, for example, after they were developed during the war itself and did not trigger or provoke the war), linked here, here, here, and here, here, here, and the true scaling law equivalence between a few thousand nuclear weapons and the several million tons of small conventional weapons in a non-nuclear world war as proved by our post summarising key points in Herman Kahn's much-abused call for credible deterrence, *On Thermonuclear War,* linked here. Peace comes through tested, proved and practical declassified countermeasures against the effects of nuclear weapons, chemical weapons and conventional weapons. Credible deterrence to end invasions and wars comes through simple, effective protection against invasions like low yield tactical weapons and walls, and civil defence against collateral damage. Peace comes through discussions of the facts as opposed to inaccurate, misleading lies of the "disarm or be annihilated" political dogma variety, which are designed to exploit fear to close down criticisms of errors in mainstream orthodoxy. In particular, please see the post linked here on EMP results from an actual Russian 300 kt test at 290 km altitude over unwarned civilian infrastructure in Kazakhstan on 22 October 1962, which caused no injuries or deaths whatsoever (contrary to all of Jeremy Corbyn and CND style lying propaganda that any use of nuclear weapons on civilians would automatically kill millions), but shut down the communications and power supply lines! This is not secret, but does not make newspaper headlines to debunk CND style dogmas on the alleged incredibility of nuclear deterrence.

- **Hiroshima's air raid shelters were unoccupied because Japanese Army officers were having breakfast when B29s were detected far away, says Yoshie Oka, the operator of the Hiroshima air raid sirens on 6 August 1945...**
- **In a sample of 1,881 burns cases in Hiroshima, only 17 (or 0.9 percent) were due to ignited clothing and 15 (or 0.7%) were due to the firestorm flames...**
- **Dr Harold L. Brode’s new book, Nuclear Weapons in ...**
- **800 war migrants drowned on 22 April by EU policy:...**
- **Photographed fireball shielding by cloud cover in ...**

- **Nuclear weapons effects "firestorm" and "nuclear w...**
- **Proved 97.5% survival in completely demolished houses ...**

How to achieve peace through tested, proved and practical declassified countermeasures against the effects of nuclear weapons, chemical weapons and conventional weapons. Credible deterrence through simple, effective protection against invasions and collateral damage. Discussions of the facts as opposed to inaccurate, misleading lies of the "disarm or be annihilated" political dogma variety. Hiroshima and Nagasaki anti-nuclear propaganda debunked by the hard facts. Walls not wars. Walls bring people together by stopping attacks by "divide and rule" style divisive terrorists, contrary to simplistic Vatican propaganda.

"There has never been a war yet which, if the facts had been put calmly before the ordinary folk, could not have been prevented." - British Foreign Secretary Ernest Bevin, House of Commons Debate on Foreign Affairs, Hansard, 23 November 1945, column 786 (unfortunately secret Cabinet committees called "democracy" for propaganda purposes have not been quite so successful in preventing war). Protection is needed against collateral civilian damage and contamination in conventional, chemical and nuclear attack, with credible low yield clean nuclear deterrence against conventional warfare which, in reality (not science fiction) costs far more lives. Anti scientific media, who promulgate and exploit terrorism for profit, censor (1) vital, effective civil defense knowledge and (2) effective, safe, low yield air burst clean weapons like the Mk54 and W79 which deter conventional warfare and escalation, allowing arms negotiations from a position of strength. This helped end the Cold War in the 1980s. Opposing civil defense and nuclear weapons that really deter conventional war, is complacent and dangerous.

War and coercion dangers have not stemmed from those who openly attack mainstream mistakes, but from those who camouflage themselves as freedom fighters to ban such free criticism itself, by making the key facts seem taboo, without even a proper debate, let alone financing research into unfashionable alternatives. Research and education in non-mainstream alternatives is needed before an unprejudiced debate, to establish all the basic facts for a real debate. "Wisdom itself cannot flourish, nor even truth be determined, without the give and take of debate and criticism." – Robert Oppenheimer (quotation from the H-bomb TV debate hosted by Eleanor Roosevelt, 12 February 1950).

"Apologies for freedom? I can't handle this! ... Deal from strength or get crushed every time ... Freedom demands liberty everywhere. I'm thinking, you see, it's not so easy. But we have to stand up tall and answer freedom's call!" – Freedom Kids

CONVENTIONAL WARS HAVE KILLED TENS OF MILLIONS OF PEOPLE, NUCLEAR WEAPONS CAN RAPIDLY DETER THIS REAL THREAT TO PEACE WITH MINIMAL CASUALTIES. 'During the critical period 8-15 February [1968], the U.S. command realized [that conventional] bombing was not sufficiently effective. ... The air campaign dropped over 110,000 tons of bombs and napalm on the area around Khe Sanh during the 77-day siege ... the most heavily bombed target in the history of conventional warfare.' – W. C. Yengst, S. J. Lukasik, and M. A. Jensen, *Nuclear Weapons that went to War,* SAID report DSWA-TR-97-25, September 1998 (quoted in the 2015 book by the secret *Capabilities of Nuclear Weapons* editor, Dr Harold L. Brode, *Nuclear Weapons in the Cold War,* page 287). British Nuclear Test Civil Defence Research

Richard P. Feynman, 'This Unscientific Age', in *The Meaning of It All,* Penguin Books, London, 1998, pages 106-9:

'Now, I say if a man is absolutely honest and wants to protect the populace from the effects of radioactivity, which is what our scientific friends often say they are trying to do, then he should work on the biggest number, not on the smallest number, and he should try to point out that the [natural cosmic] radioactivity which is absorbed by living in the city of Denver is so much more serious [than the smaller doses from nuclear explosions] ... that all the people of Denver ought to move to lower altitudes.'

"If a man reads or hears a criticism of anything in which he has an interest, watch ... if he shows concern with any question except 'is it true?' he thereby reveals that his own attitude is unscientific. Likewise if ... he judges an idea not on its merits but with reference to the author of it; if he criticizes it as 'heresy'; if he argues that authority must be right because it is authority ... The path of truth is paved with critical doubt, and lighted by the spirit of objective enquiry... the majority of people have resented what seems in retrospect to have been purely matter of fact ... nothing has aided the persistence of falsehood, and the evils resulting from it, more than the unwillingness of good people to admit the truth ... the tendency continues to be

shocked by natural comment, and to hold certain things too 'sacred' to think about. ... How rarely does one meet anyone whose first reaction to anything is to ask: 'is it true?' Yet, unless that is a man's natural reaction, it shows that truth is not uppermost in his mind, and unless it is, true progress is unlikely."

- Sir Basil Henry Liddell Hart, *Why Don't We Learn from History?,* PEN Books, 1944; revised edition, Allen and Unwin, 1972.

Civil defense countermeasures, to be taken seriously by the population, require the publication of solid facts with the scientific evidence to support those facts against political propaganda to the contrary. Secrecy over the effects of nuclear weapons tests does not hinder plutonium and missile production by rogue states, but it does hinder civil defense countermeasures, by permitting lying political propaganda to go unopposed (see linked post, here).

Terrorists successfully prey on the vulnerable. The political spreading of lies concerning threats and the alleged 'impossibility' of all countermeasures, terrorizing the population in order to 'justify' supposedly pro-peace disarmament policies in the 1920s-1930s, resulted in the secret rearmament of fascist states which were terrorizing the Jews and others, eventually leading to World War II.

Political exaggerations about nuclear weapons effects today:

(1) encourage terrorist states and other groups to secretly invest in such weapons to use either for political intimidation or for future use against countries which have no countermeasures, and

(2) falsely dismiss, in the eyes of the media and the public, cheap relatively effective countermeasures like civil defense and ABM.

Therefore, doom-mongering media lies *make us vulnerable to the proliferation threat* today in two ways, just as they led to both world wars:

(1) Exaggerations of offensive technology and a down-playing of simple countermeasures such as trenches, encouraged belligerent states to start World War I in the false belief that modern technology implied overwhelming firepower which would terminate the war quickly on the basis of offensive preparedness: if the facts about simple trench countermeasures against shelling and machine guns during the American Civil War had been properly understood, it would have been recognised by Germany that a long war based on munitions production and logistics would be necessary, and war would have been seen to be likely to lead to German defeat against countries with larger overseas allies and colonies that could supply munitions and the other resources required to win a long war.

(2) Exaggerations of aerial bombardment technology after World War I led to disarmament 'supported by' false claims that it was impossible to have any defense against a perceived threat of instant annihilation from thousands of aircraft carrying gas and incendiary bombs, encouraging fascists to secretly rearm in order to successfully take advantage of the fear and vulnerability caused by this lying political disarmament propaganda.

Contrived dismissal of civil defense by Marxist "Cambridge Scientists Anti-War Group" bigots: (a) appeased war-mongering enemies, and (b) maximised war mortality rates. Idealism kills. Super effective, fully proof-tested, cheap civil defense makes nuclear deterrence credible to stop conventional war devastation by avoiding collateral damage, tit-for-tat retaliation and escalation.

Historically, it has been proved that having weapons is not enough to guarantee a reasonable measure of safety from terrorism and rogue states; countermeasures are also needed, both to make any deterrent credible and to negate or at least mitigate the effects of a terrorist attack. Some people who wear seatbelts die in car crashes; some people who are taken to hospital in ambulances, even in peace-time, die. Sometimes, lifebelts and lifeboats cannot save lives at sea. This lack of a 100% success rate in saving lives doesn't disprove the value of everyday precautions or of hospitals and medicine. Hospitals don't lull motorists into a false sense of security, causing them to drive faster and cause more accidents. Like-minded 'arguments' against ABM and civil defense are similarly vacuous.

'As long as the threat from Iran persists, we will go forward with a missile system that is cost-effective and proven. If the Iranian threat is eliminated, we will have a stronger basis for security, and the driving force for missile-defense construction in Europe will be removed.'

- President Obama, Prague Castle, Czech Republic, 4 April 2009.

Before 9/11, Caspar Weinberger was quizzed by skeptical critics on the BBC News program *Talking Point, Friday, May 4, 2001: Caspar Weinberger quizzed on new US Star Wars ABM plans:*

'The [ABM] treaty was in 1972 ... The theory ... supporting the ABM treaty [which prohibits ABM, thus making nations vulnerable to terrorism] ... that it will prevent an arms race ... is perfect nonsense because we have had an arms race all the time we have had the ABM treaty, and we have seen the greatest increase in proliferation of nuclear weapons that we have ever had. ... So the ABM treaty preventing an arms race is total nonsense. ...

'You have to understand that without any defences whatever you are very vulnerable. It is like saying we don't like chemical warfare - we don't like gas attacks - so we are going to give up and promise not to have any defences ever against them and that of course would mean then we are perfectly safe. ...

'The Patriot was not a failure in the Gulf War - the Patriot was one of the things which defeated the Scud and in effect helped us win the Gulf War. One or two of the shots went astray but that is true of every weapon system that has ever been invented. ...

'The fact that a missile defence system wouldn't necessarily block a suitcase bomb is certainly not an argument for not proceeding with a missile defence when a missile that hits can wipe out hundreds of thousands of lives in a second. ...

'The curious thing about it is that missile defence is not an offensive weapon system - missile defence cannot kill anybody. Missile defence can help preserve and protect your people and our allies, and the idea that you are somehow endangering people by having a defence strikes me almost as absurd as saying you endanger people by having a gas mask in a gas attack. ...

'President Bush said that we were going ahead with the defensive system but we would make sure that nobody felt we had offensive intentions because we would accompany it by a unilateral reduction of our nuclear arsenal. It seems to me to be a rather clear statement that proceeding with the missile defence system would mean fewer arms of this kind.

'You have had your arms race all the time that the ABM treaty was in effect and now you have an enormous accumulation and increase of nuclear weapons and that was your arms race promoted by the ABM treaty. Now if you abolish the ABM treaty you are not going to get another arms race - *you have got the arms already there* - and if you accompany the missile defence construction with the unilateral reduction of our own nuclear arsenal then it seems to me you are finally getting some kind of inducement to reduce these weapons.'

Before the ABM system is in place, and afterwards if ABM fails to be 100% effective in an attack, or is bypassed by terrorists using a bomb in a suitcase or in a ship, civil defense is required and can be effective at saving lives:

'Paradoxically, the more damaging the effect, that is the farther out its lethality stretches, the more can be done about it, because in the last fall of its power it covers vast areas, where small mitigations will save very large numbers of people.'

- Peter Laurie, *Beneath the City Streets: A Private Inquiry into the Nuclear Preoccupations of Government,* Penguin, 1974.

'The purpose of a book is to save people [the] time and effort of digging things out for themselves. ... we have tried to leave the reader with something tangible – what a certain number of calories, roentgens, etc., means in terms of an effect on the human being. ... we must think of the

people we are writing for.'

– Dr Samuel Glasstone, DSc, letter dated 1 February 1957 to Colonel Dent L. Lay, Chief, Weapons Effects Division, U.S. Armed Forces Special Weapons Project, Washington, D.C., pages 2 and 4, concerning the preparation of *The Effects of Nuclear Weapons*.

Glasstone and Dolan stated in *The Effects of Nuclear Weapons* (1977), Table 12.17 on page 546, that the median distance in Hiroshima for survival after 20 days was 0.12 miles for people in concrete buildings and 1.3 miles for people standing outdoors. Therefore the median distances for survival in modern city buildings and in the open differed by a factor of 11 for Hiroshima; the difference in areas was thus a factor of 11^2 or about 120. *Hence, taking cover in modern city buildings reduces the casualty rates and the risks of being killed by a factor of 120 for Hiroshima conditions, contrary to popular media presented political propaganda that civil defence is hopeless*. This would reduce 120,000 casualties to 1,000 casualties.

From Dr Glasstone's *Effects of Nuclear Weapons* (1962/64 ed., page 631): 'At distances between 0.3 and 0.4 mile from ground zero in Hiroshima the average survival rate, for at least 20 days after the nuclear explosion, was less than 20 percent. Yet in two reinforced concrete office buildings, at these distances, almost 90 percent of the nearly 800 occupants survived more than 20 days, although some died later of radiation injury. Furthermore, of approximately 3,000 school students who were in the open and unshielded within a mile of ground zero at Hiroshima, about 90 percent were dead or missing after the explosion. But of nearly 5,000 students in the same zone who were shielded in one way or another, only 26 percent were fatalities. ... survival in Hiroshima was possible in buildings at such distances that the overpressure in the open was 15 to 20 pounds per square inch. ... it is evident ... that the area over which protection could be effective in saving lives is roughly eight to ten times as great as that in which the chances of survival are small.'

Lord Mayhew, House of Lords debate on Civil Defence (General Local Authority Functions) Regulations, Hansard, vol. 444, cc. 523-49, 1 November 1983: '... if there had been effective civil defence at Hiroshima probably thousands of lives would have been saved and much human suffering would have been avoided. There is no question about it. ...'

Since the 1977 update by Glasstone and Dolan, extensive new updates to EM-1 for a further revised edition of *The Effects of Nuclear Weapons* have not actually been published with unlimited public distribution, due to President Carter's 1979 executive order which transferred responsibility for civil defense from the jurisdiction of the U.S. Department of Defense's Defense Civil Preparedness Agency to the new agency (which is not an Agency of the U.S. Department of Defense, and is not concerned with the analysis of nuclear weapons test effects data), the Federal Emergency Management Agency. However, the February 1997 U.S. Department of Defense's Defense Special Weapons Agency 0602715H RDT&E Budget Item Justification Sheet (R-2 Exhibit) states that a revision of Glasstone and Dolan's unclassified *Effects of Nuclear Weapons* was budgeted for 1997-9:

"FY 1997 Plans: ... Provide text to update Glasstone's book, *The Effects of Nuclear Weapons,* the standard reference for nuclear weapons effects. ... Update the unclassified textbook entitled, *The Effects of Nuclear Weapons.* ... Continue revision of Glasstone's book, *The Effects of Nuclear Weapons,* the standard reference for nuclear weapons effects. ... FY1999 Plans ... Disseminate updated *The Effects of Nuclear Weapons.*"

The new publications are either classified or unclassified with limited distribution restrictions (e.g., Bridgman's *Introduction to the Physics of Nuclear Weapons Effects,* which includes several chapters on nuclear weapons design to enable initial radiation outputs to be calculated precisely)

which prevents up-to-date basic nuclear effects information to justify civil defense against the latest nuclear threats from being widely disseminated; the books are printed for use only by government agencies. The problem with this approach is that widespread public understanding of the best information for civil defense countermeasures is prevented.

'It is true that the Soviets have tested nuclear weapons of a yield higher than that which we thought necessary, but the 100-megaton bomb of which they spoke two years ago does not and will not change the balance of strategic power. The United States has chosen, deliberately, to concentrate on more mobile and more efficient weapons, with lower but entirely sufficient yield ...' - President John F. Kennedy in his television broadcast to the American public, 26 July 1963.

'During World War II many large cities in England, Germany, and Japan were subjected to terrific attacks by high-explosive and incendiary bombs. Yet, when proper steps had been taken for the protection of the civilian population and for the restoration of services after the bombing, there was little, if any, evidence of panic. It is the purpose of this book to state the facts concerning the atomic bomb, and to make an objective, scientific analysis of these facts. It is hoped that as a result, although it may not be feasible completely to allay fear, it will at least be possible to avoid panic.'

– Dr George Gamow (the big bang cosmologist), Dr Samuel Glasstone, DSc (Executive Editor of the book), and Professor Joseph O. Hirschfelder, *The Effects of Atomic Weapons,* Chapter 1, p. 1, Paragraph 1.3, U.S. Department of Defense, September 1950.

'The consequences of a multiweapon nuclear attack would certainly be grave ... Nevertheless, recovery should be possible if plans exist and are carried out to restore social order and to mitigate the economic disruption.'

- Philip J. Dolan, editor of *Nuclear Weapons Employment* FM 101-31 (1963), *Capabilities of Nuclear Weapons* DNA-EM-1 (1972), and *The Effects of Nuclear Weapons* (1977), Stanford Research Institute, Appendix A of the U.S. National Council on Radiological protection (NCRP) symposium *The Control of Exposure to the Public of Ionising Radiation in the Event of Accident or Attack,* 1981.

'Suppose the bomb dropped on Hiroshima had been 1,000 times as powerful ... It could not have killed 1,000 times as many people, but at most the entire population of Hiroshima ... [regarding the hype about various nuclear "overkill" exaggerations] there is enough water in the oceans to drown everyone ten times.'

- Professor Brian Martin, PhD (physics), 'The global health effects of nuclear war', *Current Affairs Bulletin,* Vol. 59, No. 7, December 1982, pp. 14-26.

In 1996, half a century after the nuclear detonations, data on cancers from the Hiroshima and Nagasaki survivors was published by D. A. Pierce et al. of the Radiation Effects Research Foundation, RERF (*Radiation Research* vol. 146 pp. 1-27; *Science* vol. 272, pp. 632-3) for 86,572 survivors, of

whom 60% had received bomb doses of over 5 mSv (or 500 millirem in old units) suffering 4,741 cancers of which only 420 were due to radiation, consisting of 85 leukemias and 335 solid cancers.

‘Today we have a population of 2,383 [radium dial painter] cases for whom we have reliable body content measurements. . . . All 64 bone sarcoma [cancer] cases occurred in the 264 cases with more than 10 Gy [1,000 rads], while no sarcomas appeared in the 2,119 radium cases with less than 10 Gy.’

- Dr Robert Rowland, Director of the Center for Human Radiobiology, *Bone Sarcoma in Humans Induced by Radium: A Threshold Response?,* Proceedings of the 27th Annual Meeting, European Society for Radiation Biology, Radioprotection colloquies, Vol. 32CI (1997), pp. 331-8.

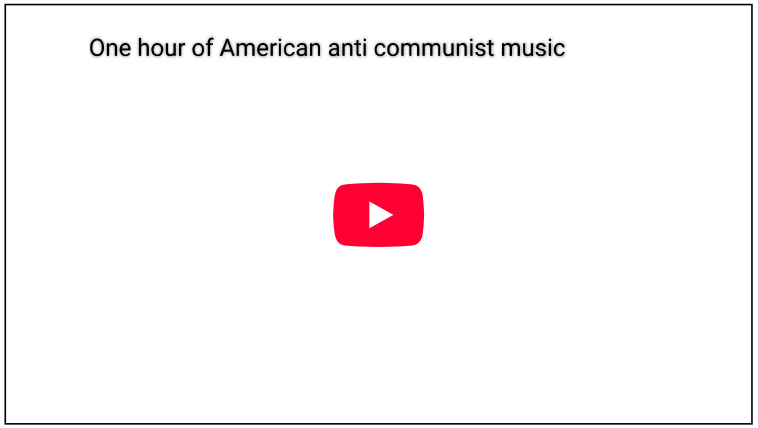
Zbigniew Jaworowski, 'Radiation Risk and Ethics: Health Hazards, Prevention Costs, and Radiophobia', *Physics Today,* April 2000, pp. 89-90:

‘... it is important to note that, given the effects of a few seconds of irradiation at Hiroshima and Nagasaki in 1945, a threshold near 200 mSv may be expected for leukemia and some solid tumors. [Sources: UNSCEAR, *Sources and Effects of Ionizing Radiation,* New York, 1994; W. F. Heidenreich, et al., *Radiat. Environ. Biophys.,* vol. 36 (1999), p. 205; and B. L. Cohen, *Radiat. Res.,* vol. 149 (1998), p. 525.] For a protracted lifetime natural exposure, a threshold may be set at a level of several thousand millisieverts for malignancies, of 10 grays for radium-226 in bones, and probably about 1.5-2.0 Gy for lung cancer after x-ray and gamma irradiation. [Sources: G. Jaikrishan, et al., *Radiation Research,* vol. 152 (1999), p. S149 (for natural exposure); R. D. Evans, *Health Physics,* vol. 27 (1974), p. 497 (for radium-226); H. H. Rossi and M. Zaider, *Radiat. Environ. Biophys.,* vol. 36 (1997), p. 85 (for radiogenic lung cancer).] The hormetic effects, such as a decreased cancer incidence at low doses and increased longevity, may be used as a guide for estimating practical thresholds and for setting standards. ...

‘Though about a hundred of the million daily spontaneous DNA damages per cell remain unrepaired or misrepaired, apoptosis, differentiation, necrosis, cell cycle regulation, intercellular interactions, and the immune system remove about 99% of the altered cells. [Source: R. D. Stewart, *Radiation Research,* vol. 152 (1999), p. 101.] ...

‘[Due to the Chernobyl nuclear accident in 1986] as of 1998 (according to UNSCEAR), a total of 1,791 thyroid cancers in children had been registered. About 93% of the youngsters have a prospect of full recovery. [Source: C. R. Moir and R. L. Telander, *Seminars in Pediatric Surgery,* vol. 3 (1994), p. 182.] ... The highest average thyroid doses in children (177 mGy) were accumulated in the Gomel region of Belarus. The highest incidence of thyroid cancer (17.9 cases per 100,000 children) occurred there in 1995, which means that the rate had increased by a factor of about 25 since 1987.

‘This rate increase was probably a result of improved screening [not radiation!]. Even then, the incidence rate for occult thyroid cancers was still a thousand times lower than it was for occult thyroid cancers in nonexposed populations (in the US, for example, the rate is 13,000 per 100,000 persons, and in Finland it is 35,600 per 100,000 persons). Thus, given the prospect of improved diagnostics, there is an enormous potential for detecting yet more [fictitious] "excess" thyroid cancers. In a study in the US that was performed during the period of active screening in 1974-79, it was determined that the incidence rate of malignant and other thyroid nodules was greater by 21-fold than it had been in the pre-1974 period. [Source: Z. Jaworowski, *21st Century Science and Technology,* vol. 11 (1998), issue 1, p. 14.]’



'Professor Edward Lewis used data from four independent populations exposed to radiation to demonstrate that the incidence of leukemia was linearly related to the accumulated dose of radiation. ... Outspoken scientists, including Linus Pauling, used Lewis's risk estimate to inform the public about the danger of nuclear fallout by estimating the number of leukemia deaths that would be caused by the test detonations. In May of 1957 Lewis's analysis of the radiation-induced human leukemia data was published as a lead article in Science magazine. In June he presented it before the Joint Committee on Atomic Energy of the US Congress.' – Abstract of thesis by Jennifer Caron, *Edward Lewis and Radioactive Fallout: the Impact of Caltech Biologists Over Nuclear Weapons Testing in the 1950s and 60s,* Caltech, January 2003.

Dr John F. Loutit of the Medical Research Council, Harwell, England, in 1962 wrote a book called Irradiation of Mice and Men (University of Chicago Press, Chicago and London), discrediting the pseudo-science from geneticist Edward Lewis on pages 61, and 78-79:

'... Mole [R. H. Mole, *Brit. J. Radiol.,* v32, p497, 1959] gave different groups of mice an integrated total of 1,000 r of X-rays over a period of 4 weeks. But the dose-rate - and therefore the radiation-free time between fractions - was varied from 81 r/hour intermittently to 1.3 r/hour continuously. The incidence of leukemia varied from 40 per cent (within 15 months of the start of irradiation) in the first group to 5 per cent in the last compared with 2 per cent incidence in irradiated controls. …

'What Lewis did, and which I have not copied, was to include in his table another group - spontaneous incidence of leukemia (Brooklyn, N.Y.) - who are taken to have received only natural background radiation throughout life at the very low dose-rate of 0.1-0.2 rad per year: the best estimate is listed as 2 x 10^{-6} like the others in the table. But the value of 2 x 10^{-6} was not calculated from the data as for the other groups; it was merely adopted. By its adoption and multiplication with the average age in years of Brooklyners - 33.7 years and radiation dose per year of 0.1-0.2 rad - a mortality rate of 7 to 13 cases per million per year due to background radiation was deduced, or some 10-20 per cent of the observed rate of 65 cases per million per year. ...

'All these points are very much against the basic hypothesis of Lewis of a linear relation of dose to leukemic effect irrespective of time. Unhappily it is not possible to claim for Lewis's work as others have done, "It is now possible to calculate - within narrow limits - how many deaths from leukemia will result in any population from an increase in fall-out or other source of radiation" [Leading article in *Science,* vol. 125, p. 963, 1957]. This is just wishful journalese.

'The burning questions to me are not what are the numbers of leukemia to be expected from atom bombs or radiotherapy, but what is to be expected from natural background .... Furthermore, to obtain estimates of these, I believe it is wrong to go to [1950s inaccurate, dose rate effect ignoring, data from] atom bombs, where the radiations are qualitatively different [i.e., including effects from neutrons] and, more important, the dose-rate outstandingly different.'

Samuel Glasstone and Philip J. Dolan, *The Effects of Nuclear Weapons,* 3rd ed., 1977, pp. 611-3:

'From the earlier studies of radiation-induced mutations, made with fruitflies [by Nobel Laureate Hermann J. Muller and other geneticists who worked on plants, who falsely hyped their insect and plant data as valid for mammals like humans during the June 1957 U.S. Congressional Hearings on fallout effects], it appeared that the number (or frequency) of mutations in a given population ... is proportional to the total dose ... More recent experiments with mice, however, have shown that these conclusions need to be revised, at least for mammals. [*Mammals are biologically closer to humans, in respect to DNA repair mechanisms, than short-lived insects whose life cycles are too small to have forced the evolutionary development of advanced DNA repair mechanisms, unlike mammals that need to survive for decades before reproducing*.] When exposed to X-rays or gamma rays, the mutation frequency in these animals has been found to be dependent on the exposure (or dose) rate ...

'At an exposure rate of 0.009 roentgen per minute [0.54 R/hour], the total mutation frequency in female mice is indistinguishable from the spontaneous frequency. [Emphasis added.] There thus seems to be an exposure-rate threshold below which radiation-induced mutations are absent ... with adult female mice ... a delay of at least seven weeks between exposure to a substantial dose of radiation, either neutrons or gamma rays, and conception causes the mutation frequency in the offspring to drop almost to zero. ... recovery in the female members of the population would bring about a substantial reduction in the 'load' of mutations in subsequent generations.'

George Bernard Shaw cynically explains groupthink brainwashing bias:

'We cannot help it because we are so constituted that we always believe finally what we wish to believe. The moment we want to believe something, we suddenly see all the arguments for it and become blind to the arguments against it. The moment we want to disbelieve anything we have previously believed, we suddenly discover not only that there is a mass of evidence against, but that this evidence was staring us in the face all the time.'

From the essay titled 'What is Science?' by Professor Richard P. Feynman, presented at the fifteenth annual meeting of the National Science Teachers Association, 1966 in New York City, and published in *The Physics Teacher,* vol. 7, issue 6, 1968, pp. 313-20:

'... great religions are dissipated by following form without remembering the direct content of the teaching of the great leaders. In the same way, it is possible to follow form and call it science, but that is pseudo-science. In this way, we all suffer from the kind of tyranny we have today in the many institutions that have come under the influence of pseudoscientific advisers.

'We have many studies in teaching, for example, in which people make observations, make lists, do statistics, and so on, but these do not thereby become established science, established knowledge. They are merely an imitative form of science analogous to the South Sea Islanders' airfields - radio towers, etc., made out of wood. The islanders expect a great airplane to arrive. They even build wooden airplanes of the same shape as they see in the foreigners' airfields around them, but strangely enough, their wood planes do not fly. The result of this pseudoscientific imitation is to produce experts, which many of you are. ... you teachers, who are really teaching children at the bottom of the heap, can maybe doubt the experts. As a matter of fact, I can also define science another way: Science is the belief in the ignorance of experts.'

Richard P. Feynman, 'This Unscientific Age', in *The Meaning of It All,* Penguin Books, London, 1998, pages 106-9:

'Now, I say if a man is absolutely honest and wants to protect the populace from the effects of radioactivity, which is what our scientific friends often say they are trying to do, then he should work on the biggest number, not on the smallest number, and he should try to point out that the [natural cosmic] radioactivity which is absorbed by living in the city of Denver is so much more serious [than the smaller doses from nuclear explosions] ... that all the people of Denver ought to move to lower altitudes.'

Feynman is *not* making a point about low level radiation effects, but about the politics of ignoring the massive natural background radiation dose, while provoking hysteria over much smaller measured fallout pollution radiation doses. Why is the anti-nuclear lobby so concerned about banning nuclear energy - which is not possible even in principle since most of our nuclear radiation is from the sun and from supernova debris contaminating the Earth from the explosion that created the solar system circa 4,540 million years ago - when they could cause much bigger radiation dose reductions to the population by concentrating on the bigger radiation source, natural background radiation. It is possible to shield natural background radiation by the air, e.g. by moving the population of high altitude cities to lower altitudes where there is more air between the people and outer space, or banning the use of high-altitude jet aircraft. The anti-nuclear lobby, as Feynman stated back in the 1960s, didn't crusade to reduce the bigger dose from background radiation. Instead they chose to argue against the *much smaller* doses from fallout pollution. Feynman's argument is still today falsely interpreted as a political statement, when it is actually exposing pseudo-science and countering political propaganda. It is still ignored by the media. It has been pointed out by Senator Hickenlooper on page 1060 of the May-June 1957 U.S. Congressional Hearings before the Special Subcommittee on Radiation of the Joint Committee on Atomic Energy, *The Nature of Radioactive Fallout and Its Effects on Man:*

'I presume all of us would earnestly hope that we never had to test atomic weapons ... but by the same token I presume that we want to save thousands of lives in this country every year and we could just abolish the manufacture of [road accident causing] automobiles ...'

Dihydrogen monoxide is a potentially very dangerous chemical containing hydrogen and oxygen which has caused numerous severe burns by scalding and deaths by drowning, contributes to the greenhouse effect, accelerates corrosion and rusting of many metals, and contributes to the erosion of our natural landscape: 'Dihydrogen monoxide (DHMO) is colorless, odorless, tasteless, and kills uncounted thousands of people every year. Most of these deaths are caused by accidental inhalation of DHMO, but the dangers of dihydrogen monoxide do not end there. Prolonged exposure to its solid form causes severe tissue damage. Symptoms of DHMO ingestion can include excessive sweating and urination, and possibly a bloated feeling, nausea, vomiting and body electrolyte imbalance. For those who have become dependent, DHMO withdrawal means certain death.'

From the site for the petition against dihydrogen monoxide: 'Please sign this petition and help stop This Invisible Killer. Get the government to do something now. ... Contamination Is Reaching Epidemic Proportions! Quantities of dihydrogen monoxide have been found in almost every stream, lake, and reservoir in America today. But the pollution is global, and the contaminant has even been found in Antarctic ice. DHMO has caused millions of dollars of property damage in the Midwest, and recently California.'

A recent example of the pseudoscientific radiation 'education' masquerading as science that Feynman (quoted above) objected to in the 1960s was published in 2009 in an article called 'The proportion of childhood leukaemia incidence in Great Britain that may be caused by natural background ionizing radiation' in *Leukemia,* vol. 23 (2009), pp. 770–776, which falsely asserts - in contradiction to the evidence that the no-threshold model is *contrary* to Hiroshima and Nagasaki data: 'Risk models based primarily on studies of the Japanese atomic bomb survivors imply that low-level exposure to ionizing radiation, including ubiquitous natural background radiation, also raises the risk of childhood leukaemia. Using two sets of recently published leukaemia risk models and estimates of natural background radiation red-bone-marrow doses received by children, about 20% of the cases of childhood leukaemia in Great Britain are predicted to be attributable to this source.' The authors of this pseudoscience which is the opposite of the facts are R. Wakeford (Dalton Nuclear Institute, University of Manchester, Manchester, UK), G. M. Kendall (Childhood Cancer Research Group, Oxford, UK), and M. P. Little (Department of Epidemiology and Public Health, Imperial College, London, UK). It is disgusting and sinful that the facts about childhood leukemia are being lied on so blatantly for non-scientific purposes, and it is to be hoped that these leukemia investigators will either correct their errors or alternatively be banned from using scientific literature to promote false dogma for deception until they mend the error of their ways and repent their sins in this matter.

Protein P53, discovered only in 1979, is encoded by gene TP53, which occurs on human chromosome 17. P53 also occurs in other mammals including mice, rats and dogs. P53 is one of the proteins which continually repairs breaks in DNA, which easily breaks at body temperature: the DNA in each cell of the human body suffers at least two single strand breaks every second, and one double strand (i.e. complete double helix) DNA break occurs at least once every 2 hours (5% of radiation-induced DNA breaks are double strand breaks, while 0.007% of spontaneous DNA breaks at body temperature are double strand breaks)! Cancer occurs when several breaks in DNA happen to occur by chance at nearly the same time, giving several loose strand ends at once, which repair proteins like P53 then repair incorrectly, causing a mutation which can be proliferated somatically. This cannot occur when only one break occurs, because only two loose ends are produced, and P53 will reattach them correctly. But if low-LET ionising radiation levels are increased to a certain extent, causing more single strand breaks, P53 works faster and is able deal with faster breaks as they occur, so that multiple broken strand ends do not arise. This prevents DNA strands being repaired incorrectly, and prevents cancer - a result of mutation caused by faults in DNA - from arising. Too much radiation of course overloads the P53 repair mechanism, and then it cannot repair breaks as they occur, so multiple breaks begin to appear and loose ends of DNA are wrongly connected by P53, causing an increased cancer risk.

1. DNA-damaging free radicals are equivalent to a source of sparks which is always present naturally.

2. Cancer is equivalent the fire you get if the sparks are allowed to ignite the gasoline, i.e. if the free radicals are allowed to damage DNA without the damage being repaired.

3. Protein P53 is equivalent to a fire suppression system which is constantly damping out the sparks, or repairing the damaged DNA so that cancer doesn't occur.

In this way of thinking, the 'cause' of cancer will be down to a failure of a DNA repairing enzyme like protein P53 to repair the damage.

Dr Jane Orient, 'Homeland Security for Physicians', *Journal of American Physicians and Surgeons,* vol. 11, number 3, Fall 2006, pp. 75-9:

'In the 1960s, a group of activist physicians called Physicians for Social Responsibility (PSR) undertook to "educate the medical profession and the world about the dangers of nuclear weapons," beginning with a series of articles in the *New England Journal of Medicine*. [Note that journal was publishing information for anti-civil defense propaganda back in 1949, e.g. the article in volume 241, pp. 647-53 of New England Journal of Medicine which falsely suggests that civil defense in nuclear war would be hopeless because a single burned patient in 1947 with 40% body area burns required 42 oxygen tanks, 36 pints of plasma, 40 pints of whole blood, 104 pints of fluids, 4,300 m of gauze, 3 nurses and 2 doctors. First, only unclothed persons in direct line of sight without shadowing can get 40% body area burns from thermal radiation, second, duck and cover offers protection in a nuclear attack warning, and G. V. LeRoy had already published, two years earlier, in J.A.M.A., volume 134, 1947, pp. 1143-8, that less than 5% of burns in Hiroshima and Nagasaki were caused by building and debris fires. In medicine it is always possible to expend vast resources on patients who are fatally injured. In a mass casualty situation, doctors should not give up just because they don't have unlimited resources; as at Hiroshima and Nagasaki, they would need to do their best with what they have.] On its website, www.psr.org, the group boasts that it "led the campaign to end atmospheric nuclear testing." With this campaign, the linear no-threshold (LNT) theory of radiation carcinogenesis became entrenched. It enabled activists to calculate enormous numbers of potential casualties by taking a tiny risk and multiplying it by the population of the earth. As an enduring consequence, the perceived risks of radiation are far out of proportion to actual risks, causing tremendous damage to the American nuclear industry. ... Efforts to save lives were not only futile, but unethical: Any suggestion that nuclear war could be survivable increased its likelihood and was thus tantamount to warmongering, PSR spokesmen warned. ...

'For the mindset that engendered and enables this situation, which jeopardizes the existence of the United States as a nation as well as the lives of millions of its citizens, some American physicians and certain prestigious medical organizations bear a heavy responsibility.

'Ethical physicians should stand ready to help patients to the best of their ability, and not advocate sacrificing them in the name of a political agenda. Even very basic knowledge, especially combined with simple, inexpensive advance preparations, could save countless lives.'

Dr Theodore B. Taylor, *Proceedings of the Second Interdisciplinary Conference on Selected Effects of a General War,* DASIAC Special Report 95, July 1969, vol. 2, DASA-2019-2, AD0696959, page 298 (also linked here):

'I must just say that as far as I'm concerned I have had some doubts about whether we should have had a civil defense program in the past. I have no doubt whatsoever now, for this reason, that I've seen ways in which the deterrent forces can fail to hold things off, so that no matter what our national leaders do, criminal organizations, what have you, groups of people over which we have no control whatsoever, can threaten other groups of people.'

This point of Taylor is the key fact on the morality. Suppose we disarm and abandon nuclear power. That won't stop fallout from a war, terrorists, or a foreign reactor blast from coming. Civil defence knowledge is needed. Even when America has ABM, it will be vulnerable to wind carried fallout. No quantity of pacifist hot air will protect people against radiation.

Charles J. Hitch and Roland B. McKean of the RAND Corporation in their 1960 book *The Economics of Defense in the Nuclear Age,* Harvard University Press, Massachusetts, pp. 310-57:

'With each side possessing only a small striking force, a small amount of cheating would give one side dominance over the other, and the incentive to cheat and prepare a preventative attack would be strong ... With each side possessing, say, several thousand missiles, a vast amount of cheating would be necessary to give one side the ability to wipe out the other's striking capability. ... the more extensive a disarmament agreement is, the smaller the force that a violator would have to hide in order to achieve complete domination. Most obviously, "the abolition of the weapons necessary in a general or 'unlimited' war" would offer the most insuperable obstacles to an inspection plan, since the violator could gain an overwhelming advantage from the concealment of even a few weapons.'

Disarmament after World War I caused the following problem which led to World War II (reported by Winston S. Churchill in the London Daily Express newspaper of November 1, 1934):

'Germany is arming secretly, illegally and rapidly. A reign of terror exists in Germany to keep secret the feverish and terrible preparations they are making.'

British Prime Minister Thatcher's address to the United Nations General Assembly on disarmament on 23 June 1982, where she pointed out that in the years since the nuclear attacks on Hiroshima and Nagasaki, 10 million people had been killed by 140 non-nuclear conflicts:

'The fundamental risk to peace is not the existence of weapons of particular types. It is the disposition on the part of some states to impose change on others by resorting to force against other nations ... Aggressors do not start wars because an adversary has built up his own strength. They start wars because they believe they can gain more by going to war than by remaining at peace.'

J. D. Culshaw, the then Director of the U.K. Home Office Scientific Advisory Branch, stated in his article in the Scientific Advisory Branch journal *Fission Fragments,* September 1972 (issue No. 19), classified 'Restricted':

'Apart from those who don't want to know or can't be bothered, there seem to be three major schools of thought about the nature of a possible Third World War ...

*** 'The first group think of something like World War II but a little worse ...**

*** '... the second of World War II but very much worse ...**

*** 'and the third group think in terms of a catastrophe ...**

'When the Armageddon concept is in favour, the suggestion that such problems exist leads to "way out" research on these phenomena, and it is sufficient to mention a new catastrophic threat [e.g., 10 years later this was done by Sagan with "nuclear winter" hype, which turned out to be fake because modern concrete cities can't produce firestorms like 1940s wooden-built areas of Hamburg, Dresden and Hiroshima] to stimulate research into the possibilities of it arising. The underlying appeal of this concept is that if one could show that the execution of all out nuclear, biological or chemical warfare would precipitate the end of the world, no one but a mad man would be prepared to initiate such a war. [However, as history proves, plenty of mad men end up gaining power and leading countries into wars.]'

J. K. S. Clayton, then Director of the U.K. Home Office Scientific Advisory Branch, stated in his introduction, entitled *The Challenge - Why Home Defence?,* to the 1977 Home Office Scientific Advisory Branch *Training Manual for Scientific Advisers:*

'Since 1945 we have had nine wars - in Korea, Malaysia and Vietnam, between China and India, China and Russia, India and Pakistan and between the Arabs and Israelis on three occasions. We have had confrontations between East and West over Berlin, Formosa and Cuba. There have been civil wars or rebellions in no less than eleven countries and invasions or threatened invasions of another five. Whilst it is not suggested that all these incidents could have resulted in major wars, they do indicate the aptitude of mankind to resort to a forceful solution of its problems, sometimes with success. ...'

It is estimated that Mongol invaders exterminated 35 million Chinese between 1311-40, without modern weapons. Communist Chinese killed 26.3 million dissenters between 1949 and May 1965, according to detailed data compiled by the Russians on 7 April 1969. The Soviet communist dictatorship killed 40 million dissenters, mainly owners of small farms, between 1917-59. Conventional (non-nuclear) air raids on Japan killed 600,000 during World War II. The single incendiary air raid on Tokyo on 10 March 1945 killed 140,000 people (more than the total for nuclear bombs on Hiroshima and Nagasaki combined) at much less than the $2 billion expense of the Hiroshima and Nagasaki nuclear bombs! Non-nuclear air raids on Germany during World War II killed 593,000 civilians. The argument that the enemy will continue stocking megaton fallout weapons if we go to cleaner weapons is irrelevant for deterrence, since we're not planning to start war, just to credibly deter invasions. You should not try to lower your standards of warfare to those of your enemy to appease groupthink taboos, or you will end up like Britain's leaders in the 1930s, trying to collaborate with fascists for popular applause.

House of Lords debate *Nuclear Weapons: Destructive Power,* published in Hansard, 14 June 1988:

Lord Hailsham of Saint Marylebone: 'My Lords, if we are going into the question of lethality of weapons and seek thereby to isolate the nuclear as distinct from the so-called conventional range, is there not a danger that the public may think that Vimy, Passchendaele and Dresden were all right —sort of tea parties—and that nuclear war is something which in itself is unacceptable?'

Lord Trefgarne: 'My Lords, the policy of making Europe, or the rest of the world, safe for conventional war is not one that I support.'

House of Commons debate *Civil Defence* published in Hansard, 26 October 1983:

Mr. Bill Walker (Tayside, North): 'I remind the House that more people died at Stalingrad than at Hiroshima or Nagasaki. Yet people talk about fighting a conventional war in Europe as if it were acceptable. One rarely sees demonstrations by the so-called peace movement against a conventional war in Europe, but it could be nothing but ghastly and horrendous. The casualties would certainly exceed those at Stalingrad, and that cannot be acceptable to anyone who wants peace'

On 29 October 1982, Thatcher stated of the Berlin Wall: 'In every decade since the war the Soviet leaders have been reminded that their pitiless ideology only survives because it is maintained by force. But the day comes when the anger and frustration of the people is so great that force cannot contain it. Then the edifice cracks: the mortar crumbles ... one day, liberty will dawn on the other side of the wall.'

On 22 November 1990, she said: 'Today, we have a Europe ... where the threat to our security from the overwhelming conventional forces of the Warsaw Pact has been removed; where the Berlin Wall has been torn down and the Cold War is at an end. These immense changes did not come about by chance. They have been achieved by strength and resolution in defence, and by a refusal ever to be intimidated.'

'The case for civil defence stands regardless of whether a nuclear deterrent is necessary or not. ... Even if the U.K. were not itself at war, we would be as powerless to prevent fallout from a nuclear explosion crossing the sea as was King Canute to stop the tide.' - U.K. Home Office leaflet, Civil Defence, 1982.

'... peace cannot be guaranteed absolutely. Nobody can be certain, no matter what policies this or any other Government were to adopt, that the United Kingdom would never again be attacked. Also we cannot tell what form such an attack might take. Current strategic thinking suggests that if war were to break out it would start with a period of conventional hostilities of uncertain duration which might or might not escalate to nuclear conflict. ... while nuclear weapons exist there must always be a chance, however small, that they will be used against us [like gas bombs in World War II]. ... as a consequence of war between other nations in which we were not involved fall out from nuclear explosions could fall on a neutral Britain. ... conventional war is not the soft option that is sometimes suggested. It is also too easily forgotten that in World War II some 50 million people died and that conventional weapons have gone on killing people ever since 1945 without respite.' - - The Minister of State, Scottish Office (Lord Gray of Contin), House of Lords debate on Civil Defence (General Local Authority Functions) Regulations, Hansard, vol. 444, cc. 523-49, 1 November 1983.

'All of us are living in the light and warmth of a huge hydrogen bomb, 860,000 miles across and 93 million miles away, which is in a state of continuous explosion.' - Dr Isaac Asimov.

'Dr Edward Teller remarked recently that the origin of the earth was somewhat like the explosion of the atomic bomb...' – Dr Harold C. Urey, *The Planets: Their Origin and Development,* Yale University Press, New Haven, 1952, p. ix.

'But compared with a supernova a hydrogen bomb is the merest trifle. For a supernova is equal in violence to about a million million million million hydrogen bombs all going off at the same time.' – Sir Fred Hoyle (1915-2001), *The Nature of the Universe,* Pelican Books, London, 1963, p. 75.

'In fact, physicists find plenty of interesting and novel physics in the environment of a nuclear explosion. Some of the physical phenomena are valuable objects of research, and promise to provide further understanding of nature.' – Dr Harold L. Brode, The RAND Corporation, 'Review of Nuclear Weapons Effects,' *Annual Review of Nuclear Science,* Volume 18, 1968, pp. 153-202.

'It seems that similarities do exist between the processes of formation of single particles from nuclear explosions and formation of the solar system from the debris of a [4 x 10^{28} megatons of TNT equivalent, type Ia] supernova explosion. We may be able to learn much more about the origin of the earth, by further investigating the process of radioactive fallout from the nuclear weapons tests.' – Dr Paul K. Kuroda (1917-2001), University of Arkansas, 'Radioactive Fallout in Astronomical Settings: Plutonium-244 in the Early Environment of the Solar System,' pages 83-96 of *Radionuclides in the Environment: A Symposium Sponsored By the Division of Nuclear Chemistry and Technology At the 155th Meeting of the American Chemical Society, San Francisco, California, April 1-3, 1968*, edited by Symposium Chairman Dr Edward C. Freiling (1922-2000) of the U.S. Naval Radiological Defense Laboratory, Advances in Chemistry Series No. 93, American Chemical Society, Washington, D.C., 1970.

Dr Paul K. Kuroda (1917-2001) in 1956 correctly predicted the existence of water-moderated natural nuclear reactors in flooded uranium ore seams, which were discovered in 1972 by French physicist Francis Perrin in three ore deposits at Oklo in Gabon, where sixteen sites operated as natural nuclear reactors with self-sustaining nuclear fission 2,000 million years ago, each lasting several hundred thousand years, averaging 100 kW. The radioactive waste they generated remained in situ for a period of 2,000,000,000 years without escaping. They were discovered during investigations into why the U-235 content of the uranium in the ore was only 0.7171% instead of the normal 0.7202%. Some of the ore, in the middle of the natural reactors, had a U-235 isotopic abundance of just 0.440%. Kuroda's brilliant paper is entitled, 'On the Nuclear Physical Stability of the Uranium Minerals', published in the *Journal of Chemical Physics*, vol. 25 (1956), pp. 781–782 and 1295–1296.

A type Ia supernova explosion, always yielding 4 x 10^{28} megatons of TNT equivalent, results from the critical mass effect of the collapse of a white dwarf as soon as its mass exceeds 1.4 solar masses due to matter falling in from a companion star. The degenerate electron gas in the white dwarf is then no longer able to support the pressure from the weight of gas, which collapses, thereby releasing enough gravitational potential energy as heat and pressure to cause the fusion of carbon and oxygen into heavy elements, creating massive amounts of radioactive nuclides, particularly intensely radioactive nickel-56, but half of all other nuclides (including uranium and heavier) are also produced by the 'R' (rapid) process of successive neutron captures by fusion products in supernovae explosions. Type Ia supernovae occur typically every 400 years in the Milky Way galaxy. On 4 July 1054, Chinese astronomers observed in the sky (without optical instruments) the bright supernova in the constellation Taurus which today is still visible as the Crab Nebula through telescopes. The Crab Nebula debris has a diameter now of 7 light years and is still expanding at 800 miles/second. The supernova debris shock wave triggers star formation when it encounters hydrogen gas in space by compressing it and seeding it with debris; bright stars are observed in the Orion Halo, the 300 light year diameter remains of a supernova. It is estimated that when the solar system was forming 4,540 million years ago, a supernova occurred around 100 light years away, and the heavy radioactive debris shock wave expanded at 1,000 miles/second. Most of the heavy elements including iron, silicon and calcium in the Earth and people are the stable end products of originally radioactive decay chains from the space burst fallout of a 7 x 10^{26} megatons thermonuclear explosion, created by fusion and successive neutron captures after the implosion of a white dwarf; a supernova explosion.

How would a 10^{55} megaton hydrogen bomb explosion differ from the big bang? Ignorant answers biased in favour of curved spacetime (ignoring quantum gravity!) abound, such as claims that explosions can't take place in 'outer space' (disagreeing with the facts from nuclear space bursts by Russia and America in 1962, not to mention natural supernova explosions in space!) and that explosions produce sound waves in air by definition! There are indeed major differences in the nuclear reactions between the big bang and a nuclear bomb. But it is helpful to notice the solid physical fact that implosion systems suggest the mechanism of gravitation: in implosion, TNT is well-known to produce an *inward* force on a bomb core, but Newton's 3rd law says there is an equal and opposite reaction force *outward*. In fact, you can't have a radially outward force without an inward reaction force! It's the rocket principle. The rocket accelerates (with force $F = ma$) *forward* by virtue of the recoil from accelerating the exhaust gas (with force $F = -ma$) in the *opposite* direction! Nothing massive accelerates without an equal and opposite reaction force. Applying this *fact* to the measured 6 x 10^{-10} ms^{-2} ~ Hc cosmological acceleration of matter radially outward from observers in the universe which was predicted accurately in 1996 and later observationally discovered in 1999 (by Perlmutter, et al.), we find an outward force $F = ma$ and inward reaction force by the 3rd law. The inward force allows quantitative predictions, and is mediated by gravitons, predicting gravitation in a checkable way (unlike string theory, which is just a landscape of 10^{500} different perturbative theories and so can't make any falsifiable predictions about gravity). So it seems as if nuclear explosions do indeed provide helpful analogies to natural features of the world, and the mainstream lambda-CDM model of cosmology - with its force-fitted unobserved *ad hoc* speculative 'dark energy' - ignores and sweeps under the rug major quantum gravity effects which increase the physical understanding of particle physics, particularly force unification and the relation of gravitation to the existing electroweak SU(2) x U(1) section of the Standard Model of fundamental forces.

Richard Lieu, Physics Department, University of Alabama, 'Lambda-CDM cosmology: how much suppression of credible evidence, and does the model really lead its competitors, using all evidence?', http://arxiv.org/abs/0705.2462.

Even Einstein grasped the possibility that general relativity's lambda-CDM model is at best just a classical approximation to quantum field theory, at the end of his life when he wrote to Besso in 1954:

'I consider it quite possible that physics cannot be based on the [classical differential equation] field principle, i.e., on continuous structures. In that case, nothing remains of my entire castle in the air, [non-quantum] gravitation theory included ...'

'Science is the organized skepticism in the reliability of expert opinion.' - Professor Richard P. Feynman (quoted by Professor Lee Smolin, *The Trouble with Physics,* Houghton-Mifflin, New York, 2006, p. 307).

'The expression of dissenting views may not seem like much of a threat to a powerful organization, yet sometimes it triggers an amazingly hostile response. The reason is that a single dissenter can puncture an illusion of unanimity. ... Among those suppressed have been the engineers who tried to point out problems with the Challenger space shuttle that caused it to blow up. More fundamentally, suppression is a denial of the open dialogue and debate that are the foundation of a free society. Even worse than the silencing of dissidents is the chilling effect such practices have on others. For every individual who speaks out, numerous others decide to play it safe and keep quiet. More serious than external censorship is the problem of self-censorship.'

— Professor Brian Martin, University of Wollongong, 'Stamping Out Dissent', Newsweek, 26 April 1993, pp. 49-50

In 1896, Sir James Mackenzie-Davidson asked Wilhelm Röntgen, who discovered X-rays in 1895: 'What did you think?' Röntgen replied: 'I did not think, I investigated.' The reason? Cathode ray expert J. J. Thomson in 1894 saw glass fluorescence far from a tube, but due to prejudice (expert opinion) he avoided investigating that X-ray evidence! 'Science is the organized skepticism in the reliability of expert opinion.' - Richard Feynman, in Lee Smolin, *The Trouble with Physics,* Houghton-Mifflin, 2006, p. 307.

Mathematical symbols in this blog: your computer's browser needs access to standard character symbol sets to display Greek symbols for mathematical physics. If you don't have the symbol character sets installed, the density symbol 'ρ' (*Rho*) will appear as 'r' and the 'π' (*Pi*) symbol will as 'p', causing confusion with the use of 'r' for radius and 'p' for momentum in formulae. This problem exists with Mozilla Firefox 3, but not with Microsoft Explorer which displays Greek symbols.

About Me



Name: nige

Currently designing secure active server page (ASP) front ends for client SQL databases. In 1982 I began programming in basic, and at college learned Fortran while a physics undergraduate a decade later. Afterwards, I switched from mainstream physics and mathematical education to part-time programming student, while working in a series of jobs including four years in credit control. www.quantumfieldtheory.org http://glasstone.blogspot.co.uk/2015/07/capabilities-of-nuclear-weapons.html/ http://www.math.columbia.edu/~woit/wordpress/?p=273#comment-5322. http://www.math.columbia.edu/~woit/wordpress/?p=353&cpage=1#comment-8728. http://www.math.columbia.edu/~woit/wordpress/?p=215#comment-4082.

View my complete profile

From 1945-62, America tested 216 nuclear weapons in the atmosphere, totalling 154 megatons, with a mean yield of 713 kilotons

From 1949-62, Russia tested 214 nuclear weapons in the atmosphere, totalling 281 megatons, with a mean yield of 1.31 megatons

From 1952-8, Britain tested 21 nuclear weapons in the atmosphere, totalling 10.8 megatons, with a mean yield of 514 kilotons

From 1960-74, France tested 46 nuclear weapons in the atmosphere, totalling 11.4 megatons, with a mean yield of 248 kilotons

From 1964-80, China tested 23 nuclear weapons in the atmosphere, totalling 21.5 megatons, with a mean yield of 935 kilotons

In summary, from 1945-80, America, Russia, Britain, France and China tested 520 nuclear weapons in the atmosphere, totalling 478.7 megatons, with a mean yield of 921 kilotons

Mean yield of the 5,192 nuclear warheads and bombs in the deployed Russian nuclear stockpile as of January 2009: 0.317 Mt. Total yield: 1,646 Mt.

Mean yield of the 4,552 nuclear warheads and bombs in the deployed U.S. nuclear stockpile as of January 2007: 0.257 Mt. Total yield: 1,172 Mt.

For diffraction damage where damage areas scale as the two-thirds power of explosive yield, this stockpile's area damage potential can be compared to the 20,000,000 conventional bombs of 100 kg size (2 megatons of TNT equivalent total *energy*) dropped on Germany during World War II: (Total nuclear bomb blast diffraction damaged ground *area*)/(Total conventional blast diffraction damaged ground *area* to Germany during World War II) = [4,552*(0.257 Mt)$^{2/3}$]/[20,000,000*(0.0000001 Mt)$^{2/3}$] = 1,840/431 = 4.3. Thus, although the entire U.S. stockpile has a TNT *energy* equivalent to 586 times that of the 2 megatons of conventional bombs dropped on Germany in World War II, it is only capable of causing 4.3 times as much diffraction type damage area, because *any given amount of explosive energy is far more efficient when distributed over many small explosions than in a single large explosion! Large explosions are inefficient because they cause unintended collateral damage, wasting energy off the target area and injuring or damaging unintended targets!*

In a controlled sample of 36,500 survivors, 89 people got leukemia over a 40 year period, above the number in the unexposed control group. (Data: *Radiation Research,* volume 146, 1996, pages 1-27.) Over 40 years, in 36,500 survivors monitored, there were 176 leukemia deaths which is 89 more than the control (unexposed) group got naturally. There were 4,687 other cancer deaths, but that was merely 339 above the number in the control (unexposed) group, so this is statistically a much smaller rise than the leukemia result. Natural leukemia rates, which are very low in any case, were increased by 51% in the irradiated survivors, but other cancers were merely increased by just 7%. Adding all the cancers together, the total was 4,863 cancers (virtually all natural cancer, nothing whatsoever to do with radiation), which is just 428 more than the unexposed control group. Hence, the total increase over the natural cancer rate due to bomb exposure was only 9%, spread over a period of 40 years. There was no increase whatsoever in genetic malformations.

There should be a note here about how unnatural radioactive pollution is (not) in space: the earth's atmosphere is a radiation shield equivalent to being protected behind a layer of water 10 metres thick. This reduces the cosmic background radiation by a factor of 100 of what it would be without the earth's atmosphere. Away from the largely uninhabited poles, the Earth's magnetic field also protects us against charged cosmic radiations, which are deflected and end up spiralling around the magnetic field at high altitude, in the Van Allen trapped radiation belts. *On the Moon, for example, there is no atmosphere or significant magnetic field so the natural background radiation exposure rate at solar minimum is 1 milliRoentgen per hour (about 10 microSieverts/hour) some 100 times that on the Earth (0.010 milliRoentgen per hour or about 0.10 microSieverts/hour). The Apollo astronauts visiting the Moon wore dosimeters and they received an average of 275 milliRoentgens (about 2.75 milliSieverts) of radiation (well over a year's exposure to natural background at sea level) in over just 19.5 days.* It is a lot more than that during a solar flare, which is one of the concerns for astronauts to avoid (micrometeorites are another concern in a soft spacesuit).

The higher up you are above sea level, the less of the atmosphere there is between you and space, so the less shielding you have to protect you from the intense cosmic space radiations (emitted by thermonuclear reactors we call 'stars', as well as distant supernovae explosions). At sea level, the air above you constitutes a radiation shield of 10 tons per square metre or the equivalent of having a 10 metres thick water shield between you and outer space. As you go up a mountain or up in an aircraft, the amount of atmosphere between you and space decreases, thus radiation levels increase with altitude because there is less shielding. *The normal background radiation exposure rate shoots up by a factor of 20, from 0.010 to 0.20 milliRoentgens per hour, when any airplane ascends from sea level to 36,000 feet cruising altitude.* (The now obsolete British Concorde supersonic

transport used to maintain radiation-monitoring equipment so that it could drop to lower-altitude flight routes if excessive cosmic radiation due to solar storms were detected.) Flight aircrew get more radiation exposure than many nuclear industry workers at nuclear power plants. Residents of the high altitude city of Denver get 100 milliRoentgens (about 1 milliSievert) more annual exposure than a resident of Washington, D.C., but the mainstream anti-radiation cranks don't campaign for the city to be shut to save kids radiation exposure, for mountain climbing to be banned, etc.!

1994 revised Introduction to Kearny's Nuclear War Survival Skills, by Dr Edward Teller, January 14, 1994:

'If defense is neglected these weapons of attack become effective. They become available and desirable in the eyes of an imperialist dictator, even if his means are limited. Weapons of mass destruction could become equalizers between nations big and small, highly developed and primitive, if defense is neglected. If defense is developed and if it is made available for general prevention of war, weapons of aggression will become less desirable. Thus defense makes war itself less probable. ... One psychological defense mechanism against danger is to forget about it. This attitude is as common as it is disastrous. It may turn a limited danger into a fatal difficulty.'

Advice of Robert Watson-Watt (Chief Scientist on the World War II British Radar Project, defending Britain against enemy attacks): 'Give them the third best to go on with, the second best comes too late, the best never comes.'

From Wikipedia (a source of groupthink): 'Groupthink is a type of thought exhibited by group members who try to minimize conflict and reach consensus without critically testing, analyzing, and evaluating ideas. Individual creativity, uniqueness, and independent thinking are lost in the pursuit of group cohesiveness, as are the advantages of reasonable balance in choice and thought that might normally be obtained by making decisions as a group. During groupthink, members of the group avoid promoting viewpoints outside the comfort zone of consensus thinking. A variety of motives for this may exist such as a desire to avoid being seen as foolish, or a desire to avoid embarrassing or angering other members of the group. Groupthink may cause groups to make hasty, irrational decisions, where individual doubts are set aside, for fear of upsetting the group's balance.'

Links

- **Google News**
- **Dr Carl E. Baum's EMP theory and interaction notes**
- **The Atomic Heritage Foundation**
- **Radiation Effects Research Foundation lumps data together to cover up benefits of low dose radiation in Hiroshima and Nagasaki Life Span Study!**
- **DTRA (Defense Threat Reduction Agency) Nuclear testing histories (PDF files)**
- **Samuel Glasstone and Philip J. Dolan**
- **Carl F. Miller's fallout research at nuclear tests**
- **British Home Office Scientific Advisory Branch**
- **Samuel Cohen's book about the collateral damage averting, invasion-deterring neutron bomb he invented, and the lying political attacks he endured as a result**
- **Jerry Emanuelson's review of EMP facts, including the direct dependence of the EMP on the Earth's natural magnetic field strength at the burst location**
- **Essays by 1950s American nuclear weapon effects test (and neutron bomb design) experts, discrediting anti-civil defence propaganda**
- **Neutron bomb inventor Samuel Cohen's 2006 book on the history of the neutron bomb, the most moral weapon ever invented due to its purely military deterrent capabilities, and the pesudo-scientific propaganda war he has had to endure from the enemies of deterrence**
- **Karl-Ludvig Grønhaug's EMP reports page with useful PDF downloads on prompt EMP and MHD-EMP measurements from nuclear tests (Norwegian language)**
- **Colonel Derek L. Duke's factual book on nuclear weapons accidents, *Chasing Loose Nukes, as told to Fred Dungan***

- **The H-Bomb and the birth of the Universe: 'For 100 Million years after time began, the universe was dark as pitch. The clouds of hydrogen condensed into huge nuclear fireballs. That moment-when the universe first lit up-was the moment of creation that matters...'**
- **American *EMP Interaction* manual: comprehensive theory of both the EMP source mechanism and the EMP pick-up in cables and antenna by electromagnetic inductance (30 MB PDF file)**
- **British Mission to Japan, *The Effects of the Atomic Bombs at Hiroshima and Nagasaki*, H. M. Stationery Office, London, 1946 (high quality 42.5 MB pdf file).**
- **1950 edition (high quality 82.7 MB PDF file) of U.S. Department of Defense book *The Effects of Atomic Weapons***
- **1957 edition (high quality 90.8 MB PDF file) of subsequently deleted sections on nuclear tests of civil defense countermeasures from U.S. Department of Defense book *The Effects of Nuclear Weapons***
- **1957 edition (low quality 30.6 MB PDF file) of entire U.S. Department of Defense book *The Effects of Nuclear Weapons***
- **1962/64 edition (high quality 188 MB PDF file) of major revised sections in the U.S. Department of Defense book *The Effects of Nuclear Weapons***
- **1962/64 edition (high quality 43.8 MB PDF file) of 74 pages of subsequently deleted material dealing with thermal ignition of houses at nuclear tests and civil defense countermeasures chapter, from the U.S. Department of Defense book *The Effects of Nuclear Weapons***
- **1977 edition (single 36.8 MB PDF file) of U.S. Department of Defense book *The Effects of Nuclear Weapons***
- **Bill Forstchen, "One Second After" book about EMP attack risk and its effects on USA.**
- **U.S. Department of Energy Opennet Documents Online (includes many Nevada and Pacific nuclear test reports as PDF files)**
- **Defense Technical Information Center (DTIC)'s Scientific and Technical Information Network (STINET) Service (other declassified Nevada and Pacific test reports)**
- **Highlights from ABM testing history**
- **THAAD Goes Another ABM Test**
- **Alex Wellerstein's Restricted Data blog contains some interesting news (but beware of his uncritical use of unobstructed dry desert and nude skin thermal radiation and other effects predictions from the 1977 edition of Glasstone and Dolan; he deletes critically objective comments and pretends that honest criticisms of propaganda as being ignorant deception are rude as an excuse for ignoring the facts and refusing to engage in objective discussion of controversial aspects of this topic; basically if you pay homage and engage in groupthink bias you may be tolerated).**
- **Carey Sublette's Nuclear Weapon Archive (it contains errors from Chuck Hansen's compilation, and it is concentrated on bomb building, not on civil defence countermeasure evaluations done at nuclear tests; note that Chuck Hansen's books and CDs give a false quotation from Neil O' Hines's book *Proving Ground*son the effects of the 10 megaton 1952 Mike explosion claiming that rats were wiped out on nearby Engebi Island, covered in heavy fallout just 2.3 miles from ground zero, whereas in fact Hines later in his book states that the native rats in fact *survived the intense close-in blast, heat and fallout under a few unches of soil, despite the initial ignorant belief that they could not have survived!* There were also follow-ups on the rats in the real fallout environment, showing none of the predicted effects from fallout uptake from food on the island. Rather than proving doomsday predictions, it proved survival is possible. Whoops! Not something for the front page headline in "Bulletin of the Atomic Scientists", "Scientific American", et al!)**

- **Quantum Field Theory**
- **Los Alamos Science journal**
- **Excellent particle physics gauge theory (fundamental force interaction) issue of Los Alamos Science journal**

-

Chemical and Biological Warfare Protective Measures



- **Western tactical neutron bombs were disarmed after...**
- **The lack of any credible deterrence led to the inv...**
- **Who is really behind this nuclear weapons effects ...**
- **Gas masks or EH20 escape hoods as an alternative t...**
- **Russian GRU spies, Novichok, and World War III: ho...**
- **Americium-241 gamma radiation from smoke detectors...**
- **New data on the Hiroshima firestorm on fallout eff...**
- **The January 1955 secret Fallout symposium of the A...**

Racist socialist and hatred inciting propaganda fr...

1929 photo of Dr Samuel Glasstone for a Leeds Merc...

The Bank of Japan, Hiroshima, survived 380 m from Ground Zero, within the firestorm area, when fires were extinguished by water buckets by its survivors, the majority of people in the building having survived. Secret US Strategic Bombing Survey report proves civil defense for modern concrete buildings is effective. The building was reopened as a bank on 8 August, merely two days after nuclear attack, and continued in use as a bank until 1992. It remains in Hiroshima. This beautifully designed and sturdy reinforced concrete building was designed in 1936 by Nagano Uheiji. We need to ensure that the worst mistakes of the past are never repeated, if we are just, moral and caring towards our fellow human beings who do not deserve to be fed lies and dangerously complacent one-sided, biased propaganda based on a populist love of obsolete dogma, and/or a hatred of the search for objective fact, by pseudo-educationalists who prefer to live in utopia than in the real world of their fellow folk!"



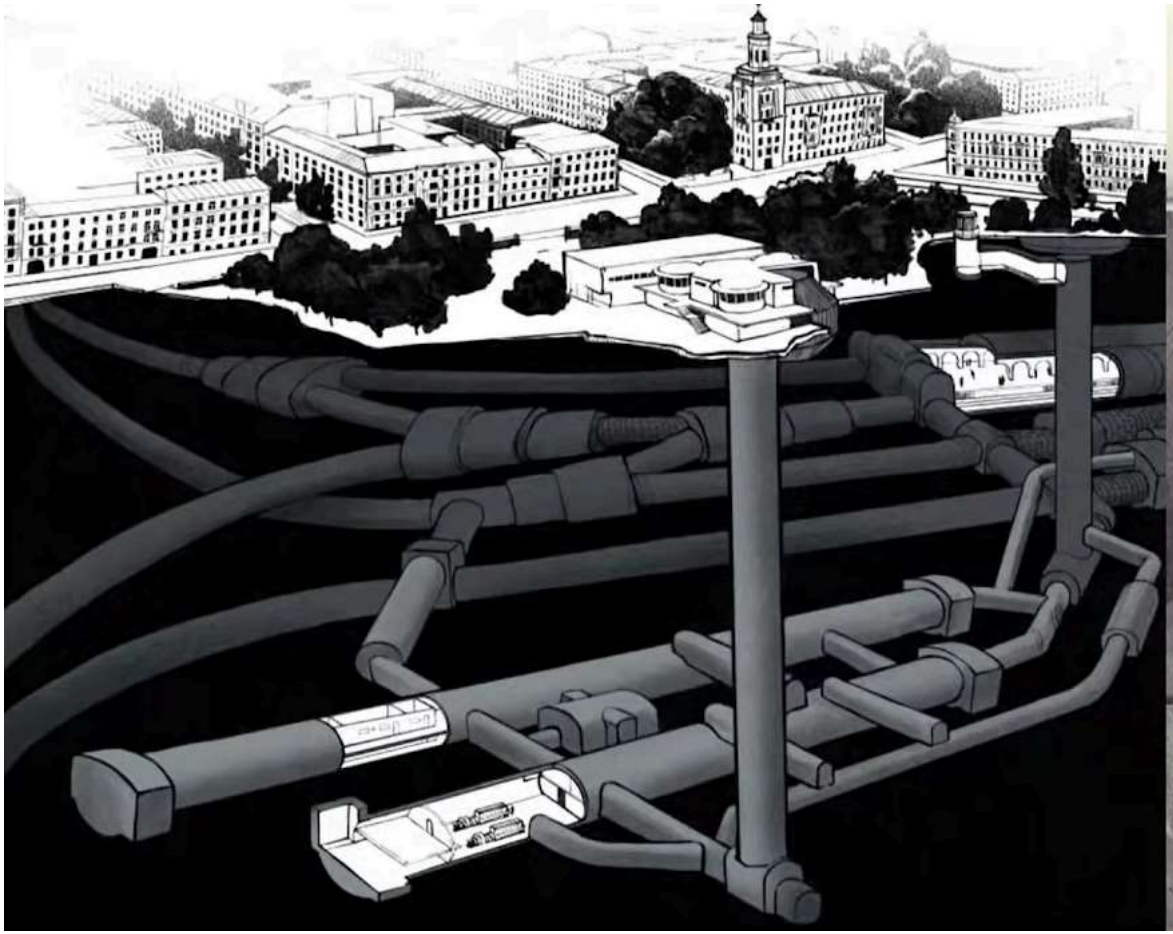
ACKNOWLEDGEMENTS: **(1). Thank you to http://www.militarystory.org/nuclear-detonations-in-urban-and-suburban-areas/ for re-blogging a typical post from this glasstone.blogspot.com blog, kicking out the lies from under secrecy obsessed loons who want disarmament to start WWIII.**

(2). Thank you to **https://www.nextbigfuture.com/2016/02/are-nuclear-weapons-100-times-less.html for reblogging: "Are [strategic, not tactical] Nuclear Weapons 100 times Less Effective Than Supposed? Nigel B. Cook's Glasstone.Blogspot Blog has beautiful coverage of many nuclear topics here. http://glasstone.blogspot.co.uk/ Cook is a master researcher who digs up incredible piles of research on all topics nuclear and the following is digest of various writings of his gathered for easy access centered on the remarkable thesis that the effects of nuclear weapons, while literally awesome, have been exaggerated or misunderstood to an even greater extent, with perhaps very considerable military consequences."**

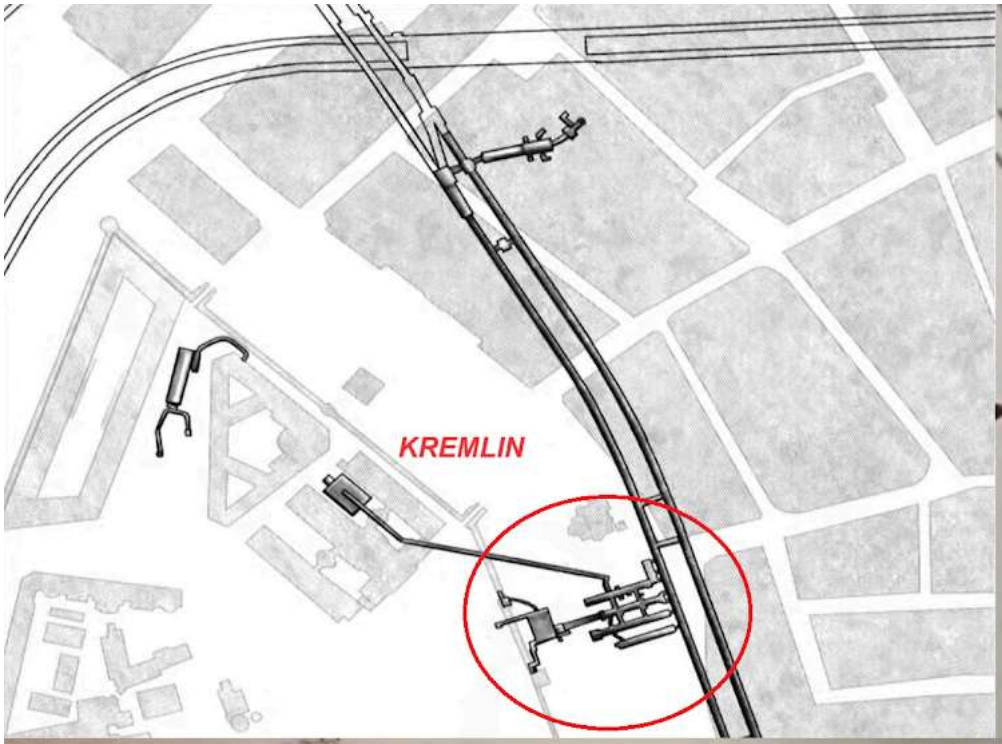
TIPS: There is compendium debunking commonplace anti-nuclear CND disarmament propaganda, exaggerations and fake news on nuclear weapons effects and deterrent capabilities **linked here**. Also, each post on this blog can be viewed in either a simple format, e.g. for this current post, **https://glasstone.blogspot.com/2022/02/analogy-of-1938-munich-crisis-and.html** is the simple (faster loading) format, or you can view it (slower loading) in a fancy format by adding: **?m=1** to the end of the URL, e.g. **https://glasstone.blogspot.com/2022/02/analogy-of-1938-munich-crisis-and.html?m=1**

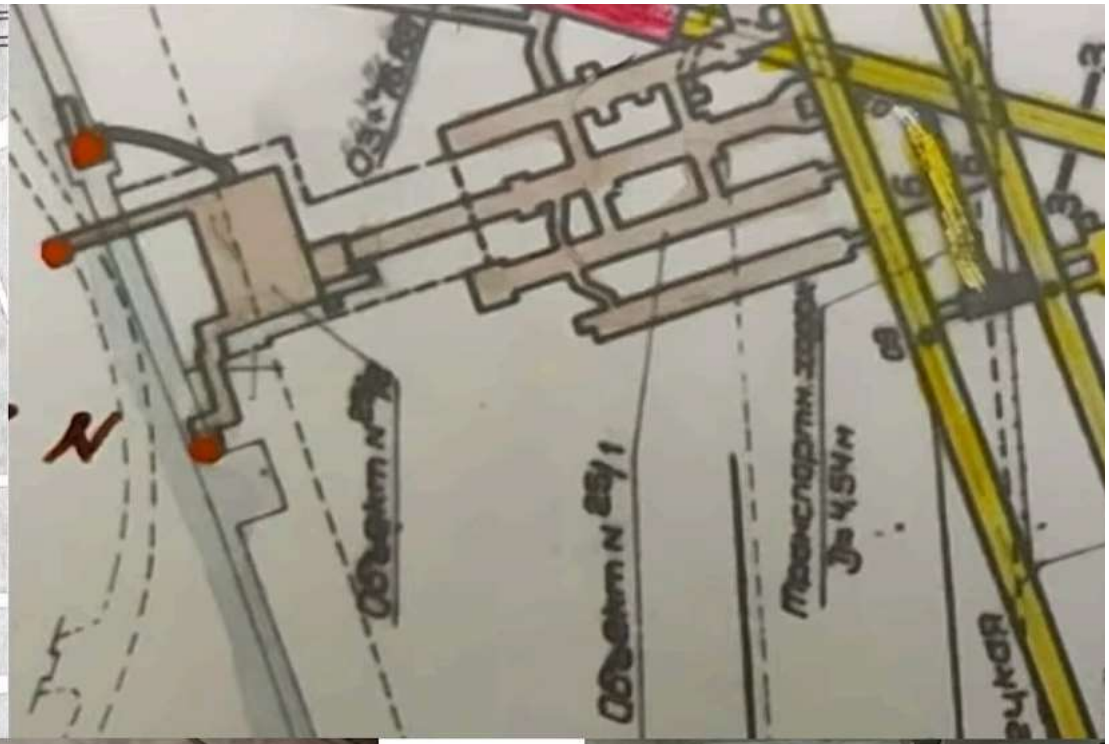
"The Budapest **Memorandum on Security Assurances ... at the OSCE conference in Budapest, Hungary on 5 December 1994 ... signed by three nuclear powers: the Russian Federation, the United Kingdom and the United States ... prohibited the Russian Federation, the United Kingdom and the United States from threatening or using military force or economic coercion against Ukraine, Belarus, and Kazakhstan. As a result of other agreements and the memorandum, between 1993 and 1996, Belarus, Kazakhstan and Ukraine gave up their nuclear weapons**." - Wiki.

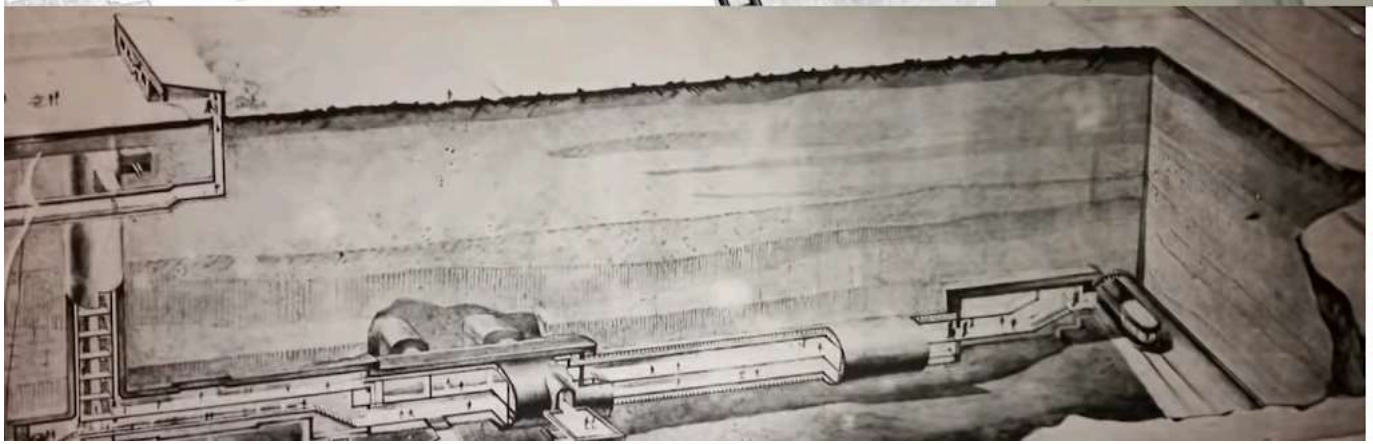
NATO needs to come to its senses and rearm to deter WWIII instead of stupidly leaving Putin with more nuclear weapons than anyone else, to intimidate like Hitler (see 1930s newspapers below, which spell out the problem plainly). The problem is, the media is dominated by nuclear liars just as it was dominated by gas war liars in the 1930s, who encouraged war while pretending to be doing the opposite. Fighting a conventional war using Ukraine as proxy, while having an inferior nuclear stockpile, is hardly credible nuclear deterrence (please click here for our brief declassified data debunking Glasstone's lying data on nuclear weapons effects) . Also see the compendium **linked here for more detail on the actual declassified effects found in Hiroshima, contrary to Glasstone's very deceptive treatment. "Disarmament and arms control" charlatans, quacks, cranks, liars, mass murdering Russian affiliates, and evil genocidal Marxist media exposed for what it is, what it was in the 1930s when it enabled Hitler to murder tens of millions in war**!




SPRINGS
ABSORPTION OF GROUND SHOCK FROM NUCLEAR WEAP







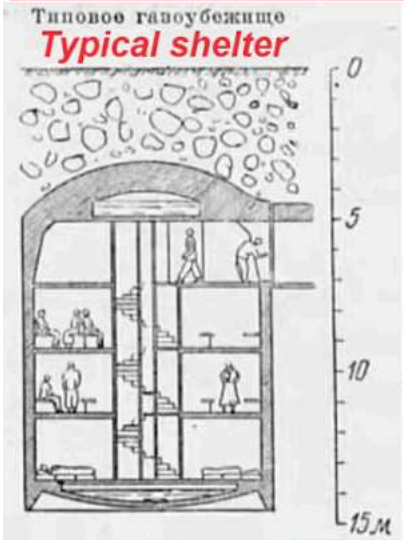
DETAILS OF SHAFTS UNDER BUILDINGS TO SHELTERS & SUBWAY TRAINS



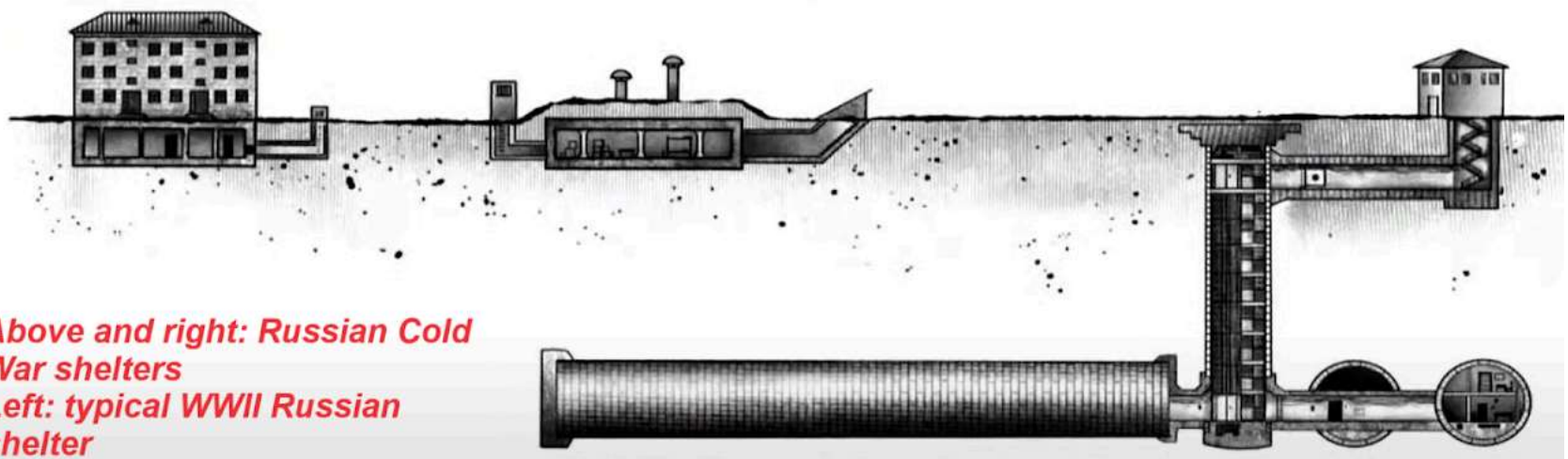
233,067 views Streamed live on 18 Apr 2021 - https://www.youtube.com/watch?v=Vpz0TOA1cLM

BUNKER 703 - SPECIAL STORAGE OF THE USSR MFA - MUSEUM OF MODERN FORTIFICATION

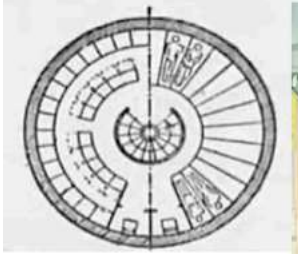
Lecture by historian Dmitry Yurkov dedicated to the declassified "bunkers" of Moscow. Based on a new book about the history of Soviet special fortification. For the first time - about "metro 2" and "Stalin's bunkers" without fiction and myths, based on archival materials.

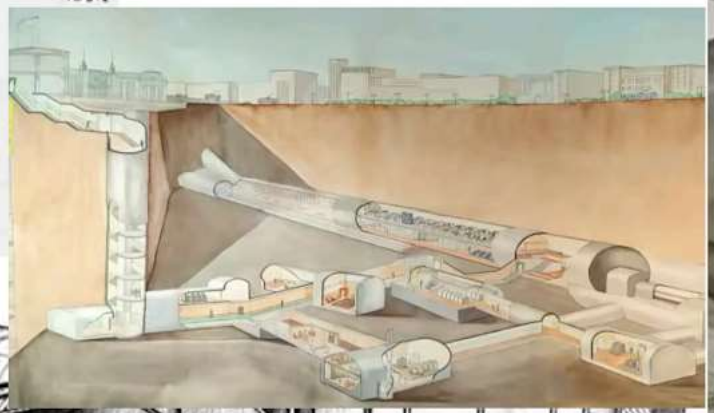


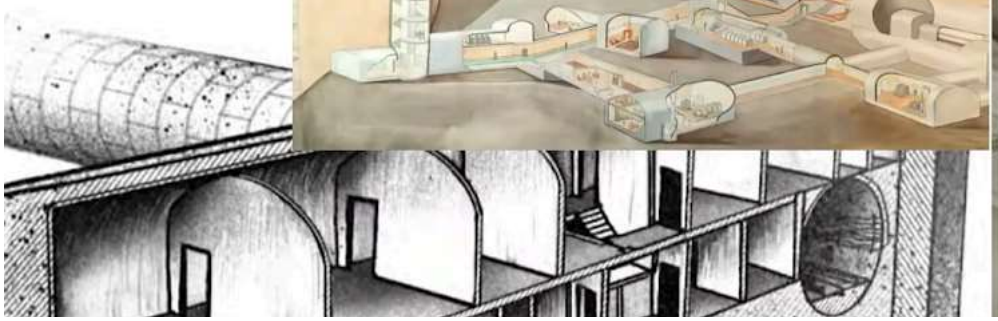
Typical shelter

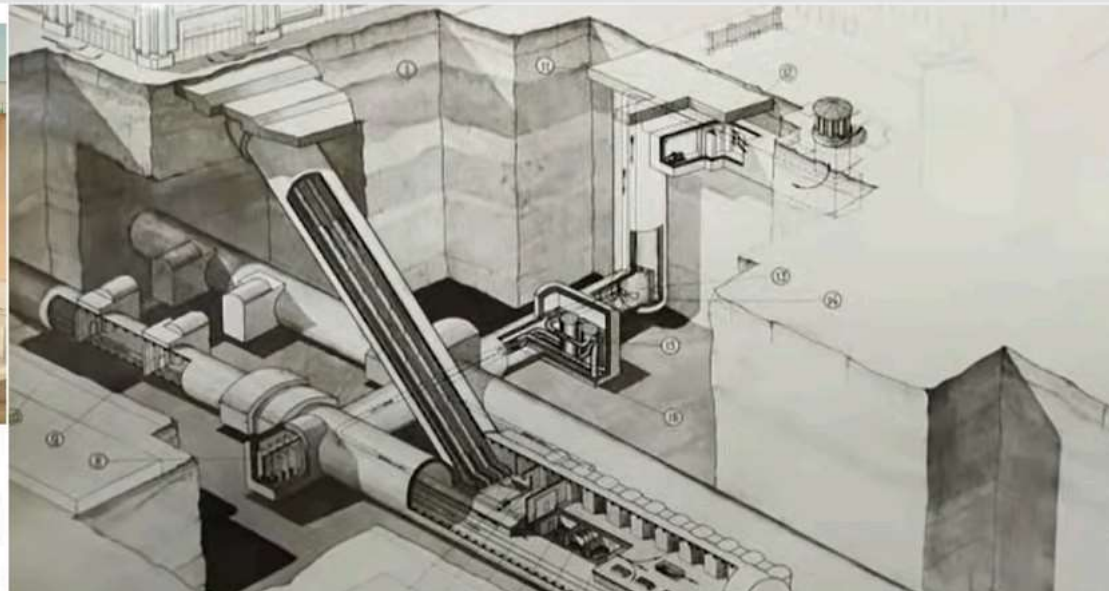


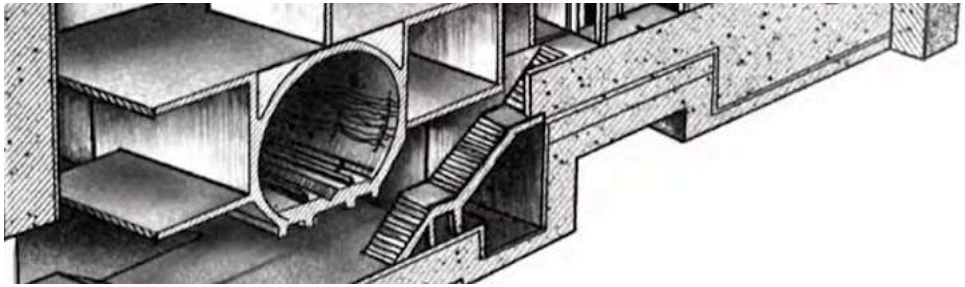
Above and right: Russian Cold War shelters
Left: typical WWII Russian shelter

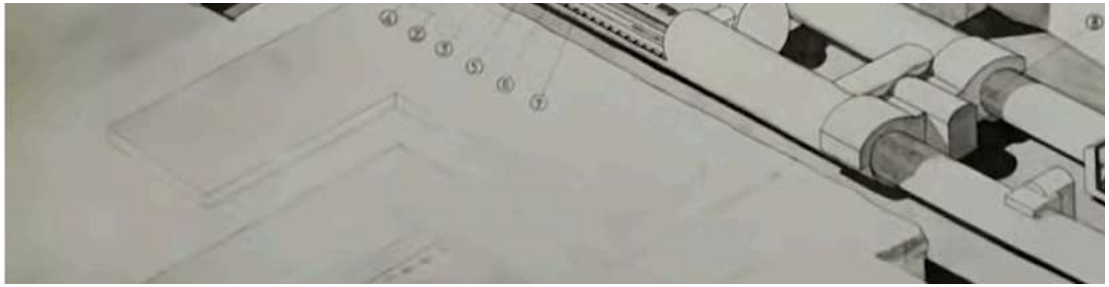




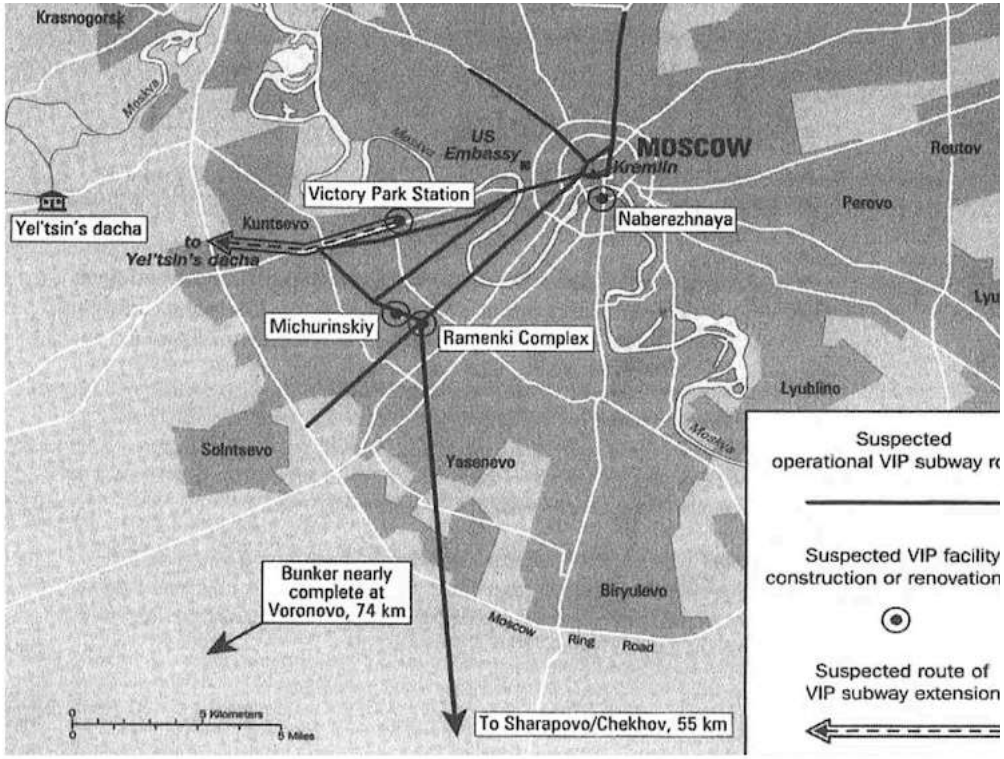








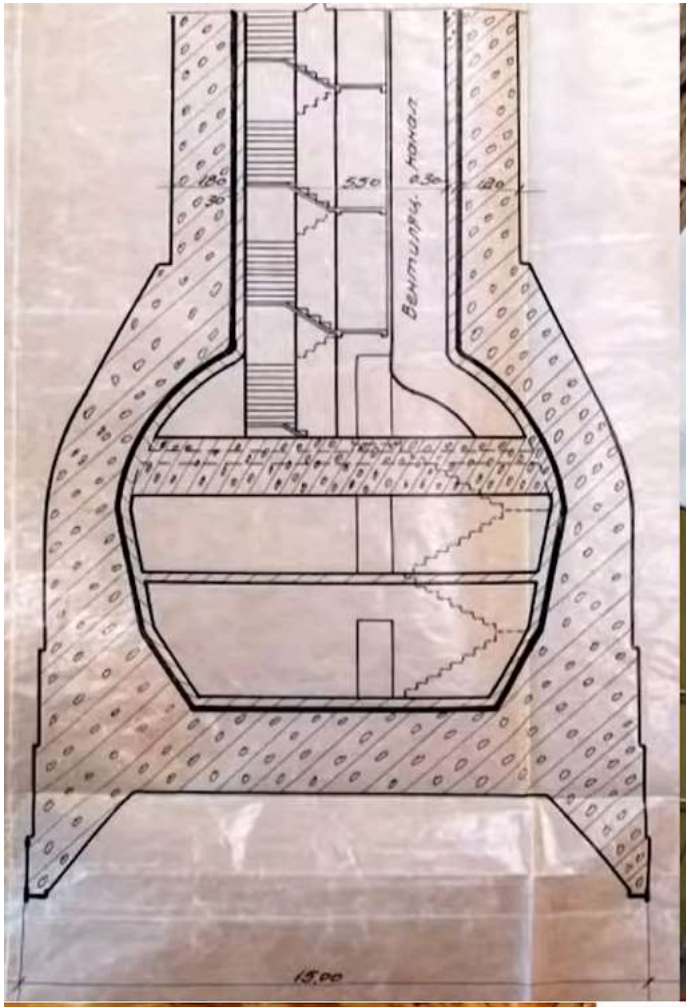

ДАЛЬНИЕ ВОЗДУХОЗАБОРЫ
(Distant Air Intakes)
Пл. Северянин
Покровское-Стрешнево
Стадион Измайлово
Крутицкая наб.
Пл. Матвеевское


Krasnogorsk
Moskva
US Embassy
MOSCOW
Kremlin
Reutov
Victory Park Station
Naberezhnaya
Perovo
Yel'tsin's dacha
Kuntsevo
to Yel'tsin's dacha
Michurinskiy
Ramenki Complex
Lyublino
Solntsevo
Yasenevo
Bunker nearly complete at Voronovo, 74 km
Biryulevo
Moscow Ring Road
To Sharapovo/Chekhov, 55 km
5 Kilometers
5 Miles
Suspected operational VIP subway r
Suspected VIP facility construction or renovation
Suspected route of VIP subway extension



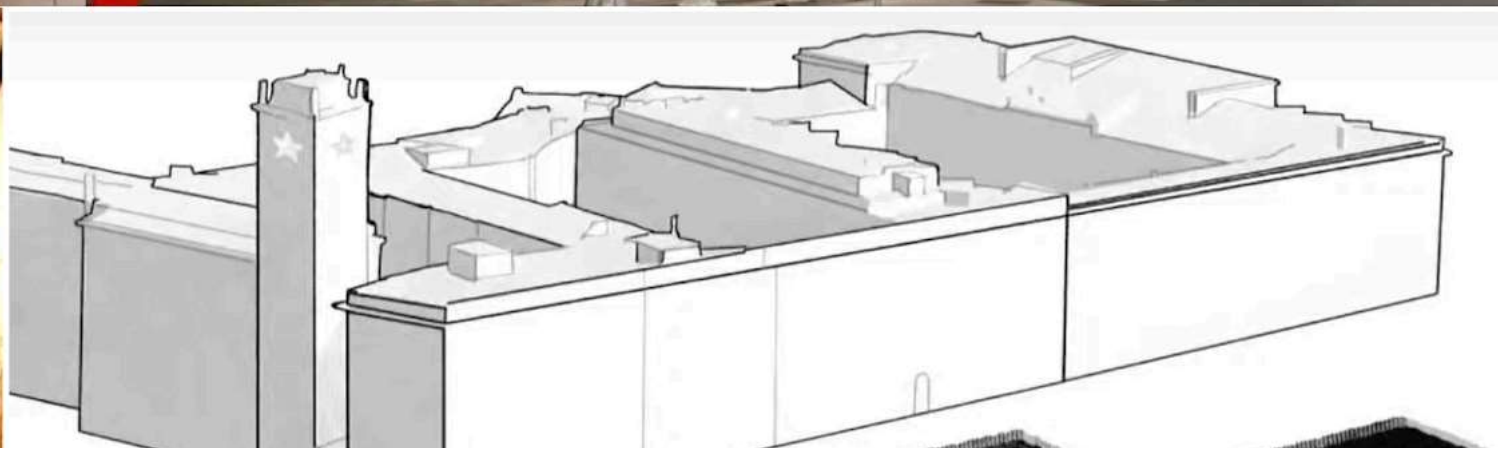




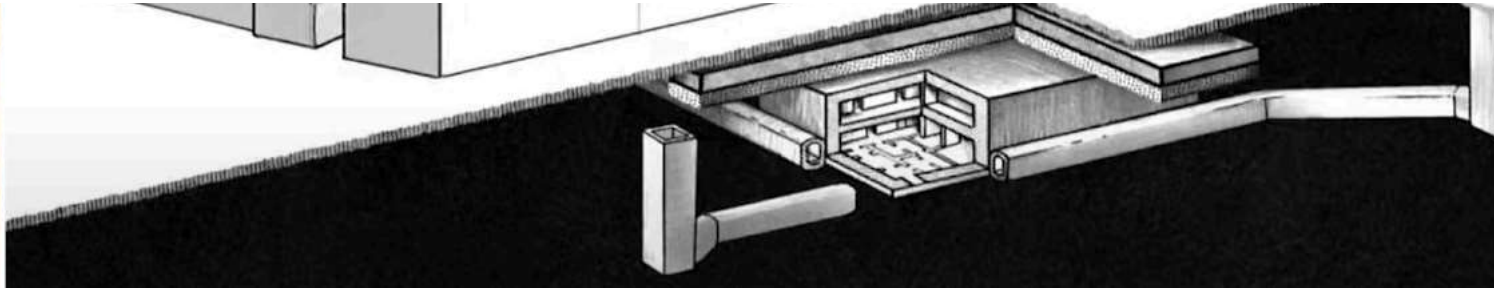

15,00







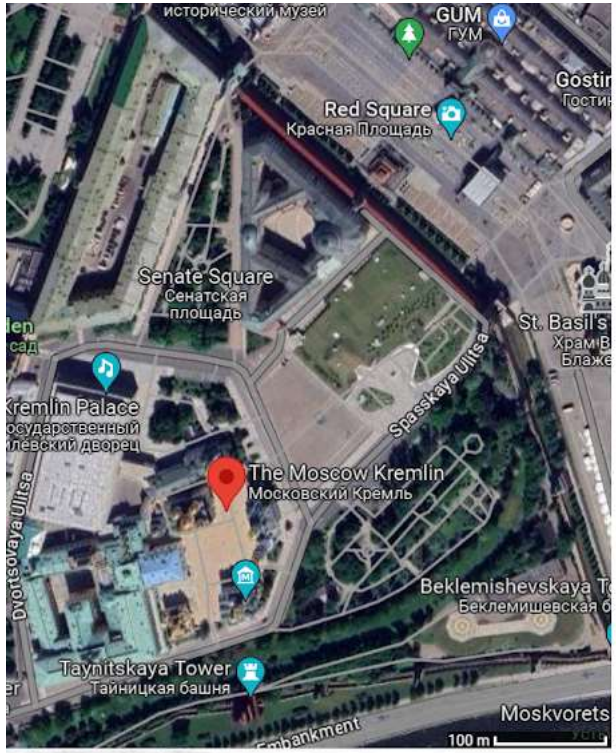




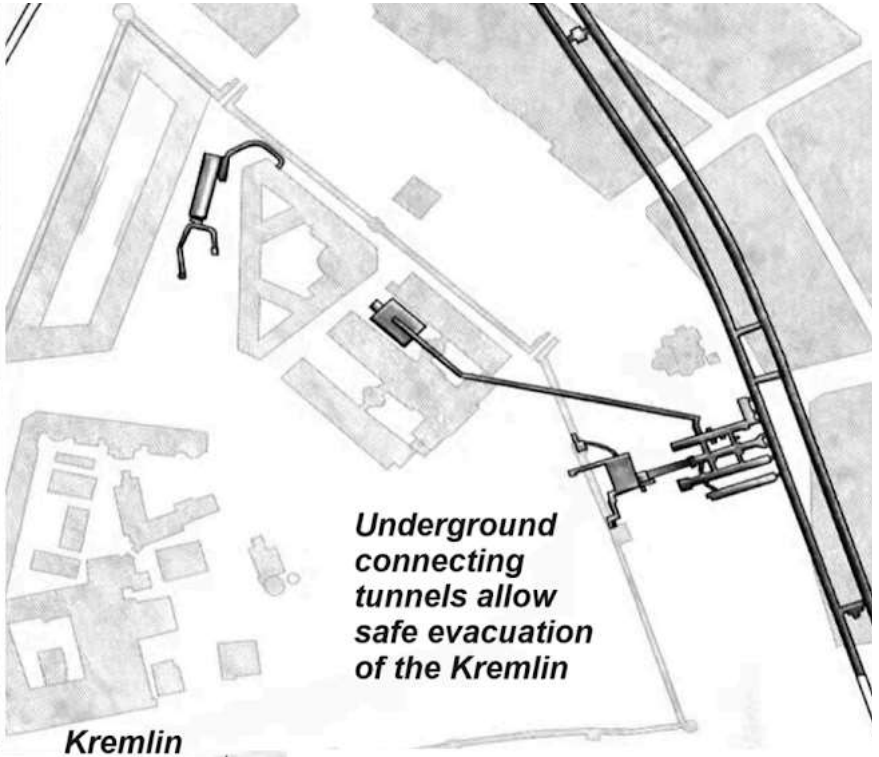
All of this data should have been published to inform public debate on the basis for credible nuclear deterrence of war and civil defense, PREVENTING MILLIONS OF DEATHS SINCE WWII, instead of dDELIBERATELY allowing enemy anti-nuclear and anti-civil defence lying propaganda from Russian supporting evil fascists to fill the public data vacuum, killing millions by allowing civil defence and war deterrence to be dismissed by ignorant "politicians" in the West, so that wars triggered by invasions with mass civilian casualties continue today for no purpose other than to promote terrorist agendas of hate and evil arrogance and lying for war, falsely labelled "arms control and disarmament for peace": "Controlling escalation is really an exercise in deterrence, which means providing effective disincentives to unwanted enemy actions. Contrary to widely endorsed opinion, the use or threat of nuclear weapons in tactical operations seems at least as likely to check [*as Hiroshima and Nagasaki*] as to promote the expansion of hostilities [*providing we're not in a situation of Russian biased arms control and disarmament whereby we've no tactical weapons while the enemy has over 2000 neutron bombs thanks to "peace" propaganda from Russian thugs*]." - Bernard Brodie, pvi of *Escalation and the nuclear option*, RAND Corp memo RM-5444-PR, June 1965.

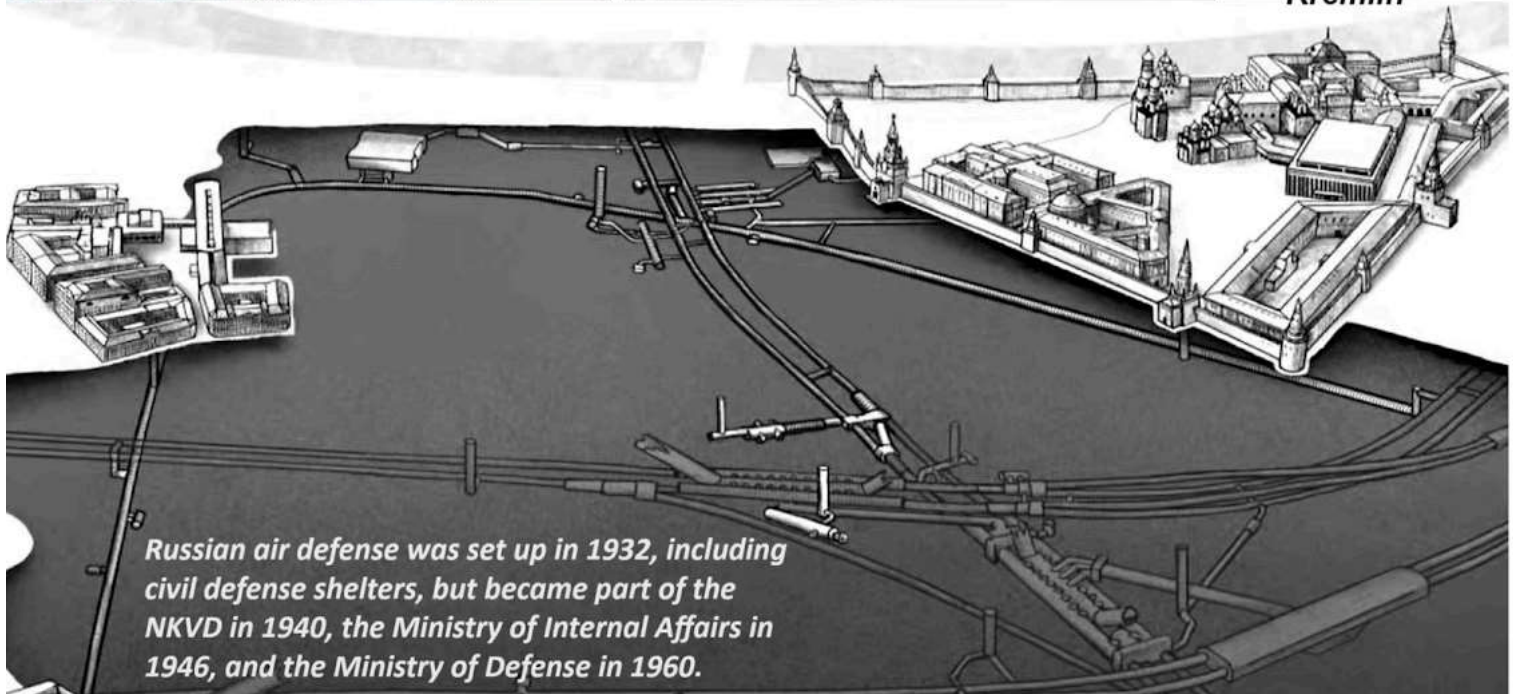
Update (19 January 2024): Jane Corbin of BBC TV is continuing to publish ill-informed nuclear weapons capabilities nonsense debunked here since 2006 (a summary of some key evidence is linked here), e.g. her 9pm 18 Jan 2024 CND biased propaganda showpiece Nuclear Armageddon: How Close Are We? https://www.bbc.co.uk/iplayer/episode/m001vgq5/nuclear-armageddon-how-close-are-we which claims - from the standpoint of 1980s Greenham Common anti-American CND propaganda - that the world would be safer without nuclear weapons, despite the 1914-18 and 1939-45 trifles that she doesn't even bother to mention, which were only ended with nuclear deterrence. Moreover, she doesn't mention the BBC's Feb 1927 WMD exaggerating broadcast by Noel-Baker which used the false claim that there is no defence against mass destruction by gas bombs to argue for UK disarmament, something that later won him a Nobel Peace Prize and helped ensure the UK had no deterrent against the Nazis until too late to set off WWII (Nobel peace prizes were also awarded to others for lying, too, for instance Norman Angell whose pre-WWI book The Great Illusion helped ensure Britain's 1914 Liberal party Cabinet procrastinated on deciding what to do if Belgium was invaded, and thus failed deter the Kaiser from triggering the First World War!). The whole basis of her show was to edit out any realism whatsoever regarding the topic which is the title of her programme! No surprise there, then. Los Alamos, Livermore and Sandia are currently designing the W93 nuclear warhead for SLBM's to replace the older W76 and W88, and what she should do next time is to address the key issue of what that design should be to deter dictators without risking escalation via collateral damage: "To enhance the flexibility and responsiveness of our nuclear forces as directed in the 2018 NPR, we will pursue two supplemental capabilities to existing U.S. nuclear forces: a low-yield SLBM warhead (W76-2) capability and a modern nuclear sea launched cruise missile (SLCM-N) to address regional deterrence challenges that have resulted from increasing Russian and Chinese nuclear capabilities. These supplemental capabilities are necessary to correct any misperception an adversary can escalate their way to victory, and ensure our ability to provide a strategic deterrent. Russia’s increased reliance on non-treaty accountable strategic and theater nuclear weapons and evolving doctrine of limited first-use in a regional conflict, give evidence of the increased possibility of Russia’s employment of nuclear weapons. ... The NNSA took efforts in 2019 to address a gap identified in the 2018 NPR by converting a small number of W76-1s into the W76-2 low-yield variant. ... In 2019, our weapon modernization programs saw a setback when reliability issues emerged with commercial off-the-shelf non-nuclear components intended for the W88 Alteration 370 program and the B61-12 LEP. ... Finally, another just-in-time program is the W80-4 LEP, which remains in synchronized development with the LRSO delivery system. ... The Nuclear Weapons Council has established a requirement for the W93 ... If deterrence fails, our combat-ready force is prepared now to deliver a decisive response anywhere on the globe ..." - Testimony of Commander Charles Richard, US Strategic Command, to the Senate Committee on Armed Services, 13 Feb 2020. This issue of how to use nuclear weapons safely to deter major provocations that escalate to horrific wars is surely is the key issue humanity should be concerned with, not the CND time-machine of returning to a non-nuclear 1914 or 1939! Corbin doesn't address it; she uses debunked old propaganda tactics to avoid the real issues and the key facts.

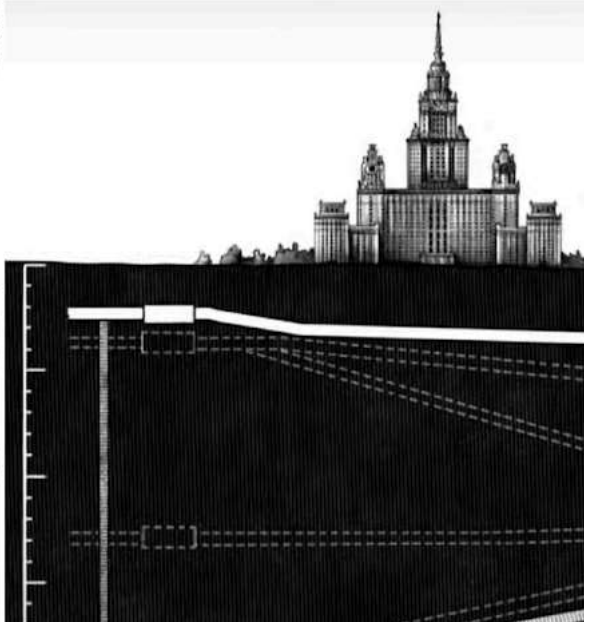
For example, Corbin quotes only half a sentence by Kennedy in his TV speech of 22 October 1962: "it shall be the policy of this nation to regard any nuclear missile launched from Cuba against any nation in the Western hemisphere as an attack by the Soviet Union on the United States", and omits the second half of the sentence, which concludes: "requiring a full retalitory response upon the Soviet Union." Kennedy was clearly using US nuclear superiority in 1962 to deter Khrushchev from allowing the Castro regime to start any nuclear war with America! By chopping up Kennedy's sentence, Corbin juggles the true facts of history to meet the CND agenda of "disarm or be annihilated." Another trick is her decision to uncritically interview CND biased anti-civil defense fanatics like the man (Professor Freedman) who got Bill Massey of the Sunday Express to water down my article debunking pro-war CND type "anti-nuclear" propaganda lies on civil defense in 1995! Massey reported to me that Freedman claimed civil defense is no use against a H-bomb, which he claims is cheaper than dirt cheap shelters, exactly what Freedman wrote in his deceptive letter published in the 26 March 1980 Times newspaper: "for far less expenditure the enemy could make a mockery of all this by increasing the number of attacking weapons", which completely ignores the Russian dual-use concept of simply adding blast doors to metro tubes and underground car parks, etc. In any case, civil defense makes deterrence credible as even the most hard left wingers like Duncan Campbell acknowledged on page 5 of *War Plan UK* (Paladin Books, London, 1983): "Civil defence ... is a means, if need be, of putting that deterrence policy, for those who believe in it, into practical effect."


GUM
ГУМ
Red Square
Красная Площадь
Senate Square
Сенатская площадь
St. Basil's
Kremlin Palace
The Moscow Kremlin
Московский Кремль
Spasskaya Ulitsa
Beklemishevskaya
Taynitskaya Tower
Тайницкая башня
Moskvorets
Embankment
100 m




Underground connecting tunnels allow safe evacuation of the Kremlin
Kremlin


Russian air defense was set up in 1932, including civil defense shelters, but became part of the NKVD in 1940, the Ministry of Internal Affairs in 1946, and the Ministry of Defense in 1960.




Moscow's subway and underground shelters network

Прошу рассмотреть разработанный Министерством путей сообщения технический проект на работы по оборудованию Московского метрополитена под массовое убежище, и свои предложения представить в Совет Министров СССР.

Срок 20 дней.

8/1-53 г. И. Молотов

podzemnayamoskva.ru

Министр
путей сообщения
С С С Р

1/XII 1952 г.
№ 007806пр

Копия
Сов.Секретно

В СОВЕТ МИНИСТРОВ СОЮЗА ССР

РАССЕКРЕЧЕНО

Во исполнение Постановления Совета Министров СССР от 10/X1 1952г. № 2699-1007сс Министерством путей сообщения разработан и представляется на утверждение технический проект и генеральная смета на спецустройства ПВО по приспособлению и оборудованию Московского метрополитена под бомбо и газоубежище для населения.

Проект предусматривает оборудование линии метрополитена по 1 этапу работ: защитно-герметическими и герметическими затворами, фильтро-вентиляционными установками, санитарно-техническими узлами, водоснабжением, энергоснабжением, аварийным освещением, связью, радиовещанием и защитными тюфяками.

Под убежище используются тоннели и станции имеющие естественную защитную толщу грунта от однократного действия ФАБ-2500, по следующим линиям метрополитена глубокого заложения:

Кировско-Фрунзенский диаметр	- 2 км
Горьковско-Замоскворецкий диаметр	- 9,6 км
Покровско-Арбатский "	-12,0 км
Кольцевая линия	-19,3 км

Общее протяжение трассы линии Метрополитена глубокого заложения используемых под массовое бомбо и газоубежище составляет 42,9 км.

Суммарная вместимость тоннелей и станций по всем линиям - 822 тыс.человек.

Для защиты тоннелей и станций от удара взрывной волны и от проникания ОВ предусматривается установка защитно-герметических затворов.

I ask you to consider the technical project developed by the Ministry of Railways for work on the equipment of the Moscow Metro for mass shelter, and submit your proposals to the Council of Ministers of the USSR.

The term is 20 days.

8/1-53 g. И. Молотов

podzemnayamoskva.ru

Minister
of Railways S
S S R

1/XI 1952
№ 007806pr

A copy
of the Owls. Secre

TO THE COUNCIL OF MINISTERS OF THE UNION SSR

DECLASSIFIED

In pursuance of the Resolution of the Council of Ministers of the USSR № of 10/X1 1952. 2699-1007ss, the Ministry of Railways has developed and submitted for approval a technical project and a general estimate for special devices 1VO for the adaptation and equipment of the Moscow metro for a bomb and a gas shelter for the population.

The project provides for the equipment of the metro line for 1 stage of work: protective-hermetic and hermetic gates, filter-ventilation installations, sanitary-technical units, water supply, power supply, emergency lighting, communications, radio broadcasting and protective mattresses.

Tunnels and stations with a natural protective layer of soil from a single action of FAB-2500 are used for shelter, along the following deep-laid metro lines:

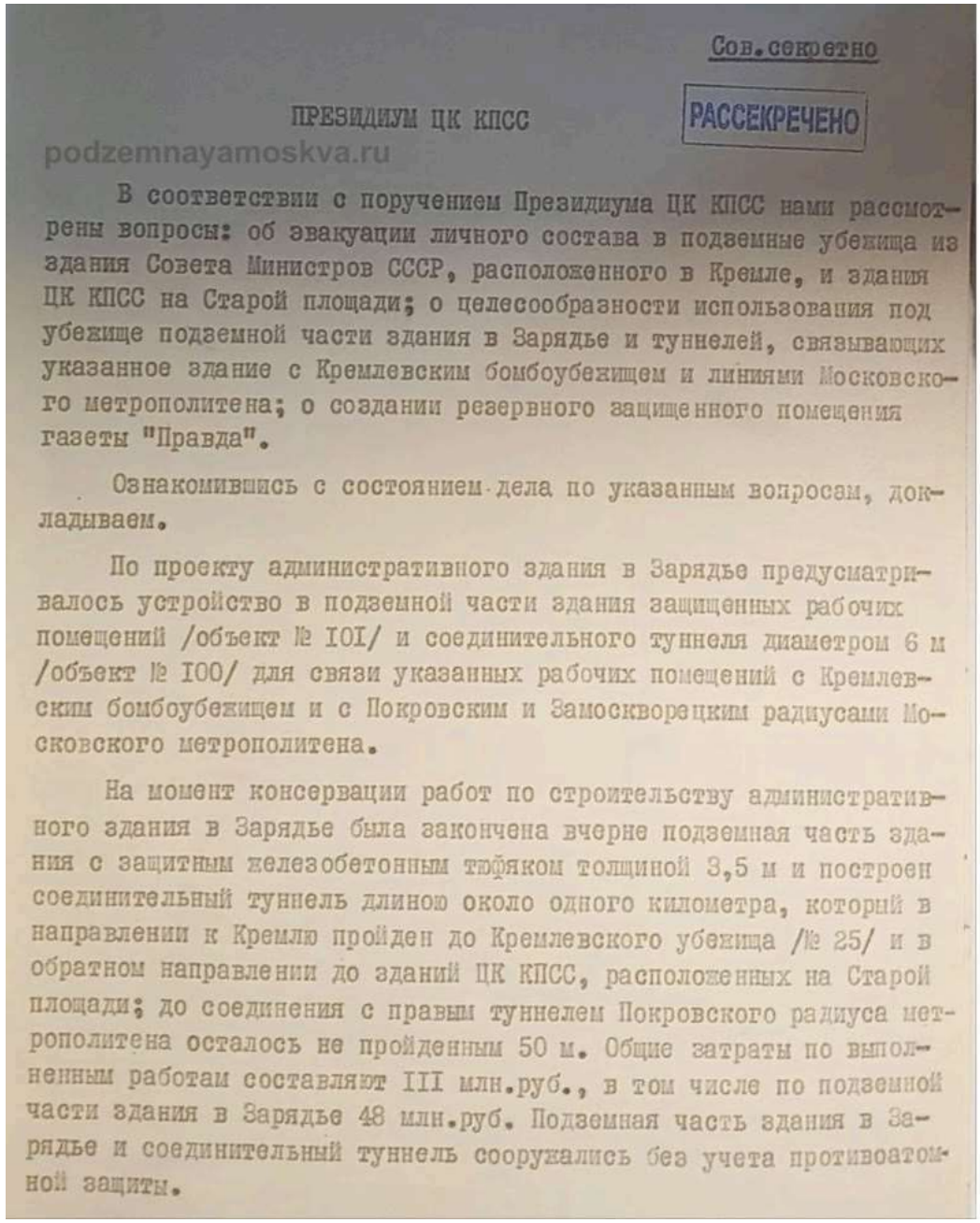
Kirovsko-Frunzensky diameter	- 2 km
Gorky-Zamoskvoretsky diameter	- 9.6 km
Pokrovsko-Arbatsky "	-12.0 km
Ring line	-19.3 km

The total length of the route of the deep-laid Metro line used for mass bomb and gas shelter is 42.9 km.

The total capacity of tunnels and stations on all lines is 822 thousand people. **[Hence, Russian metro shelter could shelter 822,000!]**

To protect tunnels and stations from the impact of an explosive wave and from penetrakania OV provides for the installation of protective and hermetic closures.

SOURCE: Dmitry Yurkov, http://podzemnayamoskva.ru/475-2/



Сов.секретно

ПРЕЗИДИУМ ЦК КПСС

РАССЕКРЕЧЕНО

podzemnayamoskva.ru

В соответствии с поручением Президиума ЦК КПСС нами рассмотрены вопросы: об эвакуации личного состава в подземные убежища из здания Совета Министров СССР, расположенного в Кремле, и здания ЦК КПСС на Старой площади; о целесообразности использования под убежище подземной части здания в Зарядье и туннелей, связывающих указанное здание с Кремлевским бомбоубежищем и линиями Московского метрополитена; о создании резервного защищенного помещения газеты "Правда".

Ознакомившись с состоянием дела по указанным вопросам, докладываем.

По проекту административного здания в Зарядье предусматривалось устройство в подземной части здания защищенных рабочих помещений /объект № 101/ и соединительного туннеля диаметром 6 м /объект № 100/ для связи указанных рабочих помещений с Кремлевским бомбоубежищем и с Покровским и Замоскворецким радиусами Московского метрополитена.

На момент консервации работ по строительству административного здания в Зарядье была закончена вчерне подземная часть здания с защитным железобетонным тюфяком толщиной 3,5 м и построен соединительный туннель длиной около одного километра, который в направлении к Кремлю пройден до Кремлевского убежища /№ 25/ и в обратном направлении до зданий ЦК КПСС, расположенных на Старой площади; до соединения с правым туннелем Покровского радиуса метрополитена осталось не пройденным 50 м. Общие затраты по выполненным работам составляют 111 млн.руб., в том числе по подземной части здания в Зарядье 48 млн.руб. Подземная часть здания в Зарядье и соединительный туннель сооружались без учета противоатомной защиты.

TRANSLATION

Sov, secret

DECLASSIFI

PRESIDIUM OF THE CENTRAL COMMITTEE OF THE CPSU

In accordance with the instructions of the Presidium of the Central Commit of the CPSU, we have considered the following issues: the evacuation of personnel to underground shelters from the building of the Council of Ministers of the USSR, located in the Kremlin, and the building the Central Committee of the CPSU on the Old Square; on the expediency of using the underground part of the building in Zaryadye as a shelter and tunnels connecting the specified building with the Kremlin bomb shelter and the lir of the Moscow Metro; on the creation of a backup protected room of the newspaper Pravda.

Having familiarized with the state of the case on these issues, we report.

According to the project of the administrative building in Zaryadye, there w a device in the lower part of the building of protected workrooms /object nc IOI/ and a connecting tunnel with a diameter of 6 m /object no. IO0/ for connecting these workrooms with the Kremlin bomb shelter and with the Pokrovsky and Zamoskvoretsky radpuses of the Moscow metro.

At the time of conservation of the construction of the administrative buildir in Zaryadye, the underground part of the building with a protective reinforc concrete mattress 3.5 m thick was completed in rough and a connecting tunnel about one kilometer long was built, which in the direction to the Kremlin, it was passed to the Kremlin Shelter / No. 25/ and in the opposite direction to the buildings of the Central Committee of the CPSU located on Old Square; 50 m remained to be passed before connecting with the right tunnel of the Pokrovsky metro radius. The total costs of the work performe amount to III million rubles, including 48 million rubles for the underground part of the building in Zaryadye. The underground part of the building in Zaryadye and the connecting tunnel were constructed without taking into account the anti-atomic protection.

Metro-2 SOURCE: Dmitry Yurkov at https://podzemnayamoskva.ru/zarad1(



SOURCE: https://vniitf.ru/article/meropriyatiya Backup at: https://web.archive.org/save/https://vniitf.ru/article/meropriyatiya

CAPTION: Пагуошская конференция. С 11 по 13 сентября 1997 г. в Снежинске состоялась IV Международная Пагуошская конференция «Состояние и перспективы ядерных комплексов США и России». В работе конференции приняли участие ученые из России, США, Великобритании, ФРГ, Японии, Франции, Италии, Швеции, Швейцарии и Китая. Конференция проходила два дня и обсуждались проблемы ядерных городов, вопросы международного сотрудничества лабораторий, технологические аспекты разоружения.

TRANSLATION: Pugwash Conference. From September 11 to 13, 1997, the IV International Pugwash Conference "Status and Prospects of the Nuclear Complexes of the USA and Russia" was held in Snezhinsk. Scientists from Russia, the USA, Great Britain, Germany, Japan, France, Italy, Sweden, Switzerland and China took part in the conference. The conference lasted two days and discussed the problems of nuclear cities, issues of international cooperation between laboratories, and technological aspects of disarmament.




ДОМ УЧЕНЫ
ПЕРВАЯ СОВЕТСКАЯ
АТОМНАЯ БОМБА
РДС-1